

UNCLASSIFIED

AD 445220

DEFENSE DOCUMENTATION CENTER

FOR

SCIENTIFIC AND TECHNICAL INFORMATION

CAMERON STATION, ALEXANDRIA, VIRGINIA



UNCLASSIFIED

NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

445220

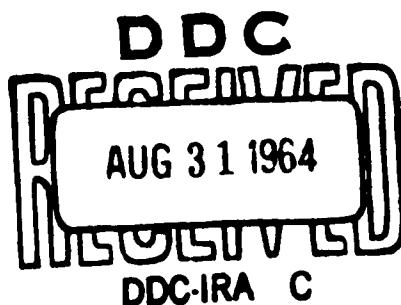
SHARKS and SURVIVAL

APPENDIX

A List of Shark Attacks for the World

By Leonard P. Schultz and Marilyn H. Malin
Smithsonian Institution, Washington, D. C.

CARTER LIBRARY
CATALOGUE
SERIALS
DDC



Purchased by
the Smithsonian Institution
for official use

APPENDIX

A List of Shark Attacks for the World

By Leonard P. Schultz and Marilyn H. Malin
Smithsonian Institution, Washington, D. C.

This list of shark attacks was prepared from the documented file in the Division of Fishes, United States National Museum, under the sponsorship of the Biology Branch of the Office of Naval Research, Contract Number NONR 1354 (07). Members of the AIBS Shark Research Panel are kept informed of current shark incidents in all parts of the world by means of five clipping or press-cutting services, three of which are subscribed to by Cornell University and two by the Smithsonian Institution. The assistance of these two institutions, as well as of all persons who have cooperated in supplying documentation on individual cases of attack, is gratefully acknowledged. Special thanks go to Mr. Michael Lerner, who solicited and compiled information relating to shark attacks from chapters of the International Game Fishermen's Association.

UNPROVOKED SHARK ATTACKS

Unprovoked shark attacks include all cases in which unprovoked sharks have made physical contact with the victim or gear he is wearing.

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	AFRICA	No. of PEOPLE	FATAL
156	?	Two women Woman	Red House, Zwartkops R., 33° 50'S. 25° 37'E.		2	no
157	?	Man	Kowie, Port Alfred, 33° 36'S. 26° 54'E.		1	no
158	Jan. 28, 1886	Servy Le Roux	Port Elizabeth, 33° 58'S. 25° 37'E.		1	no
159	Jan. 220, 1930		Melkbakk Beach, False Bay, Cape Province, 34° 21'S. 18° 29'E.		1	no
160	Jan. 7, 1940	Frederick Hooper	Warner Beach, 20 miles south of Durban, 30° 20'S. 30° 50'E.		1	yes
161	1940	Girl	Winkelspruit, 22 miles south of Durban, 30° 21'S. 30° 50'E.		1	yes
162	Feb. 22, 1940	Leslie Lund	Inyoni Rocks, 17 miles south of Durban, 30° 18'S. 30° 50'E.		1	yes
163	Mar. 31, 1940	Joe Lees	Winkelspruit, 30° 21'S. 30° 50'E.		1	yes
164	Dec. 20, 1940	Desmond Chandley	Inyoni Rocks, 30° 18'S. 30° 50'E.		1	yes
165	Nov. 25, 1942	E. W. Bilton	Umkomaas, 30° 15'S. 30° 50'E.		1	no
166	Dec. 12, 1943	James Matthews	Amanzimtoti, 30° 55'S. 30° 55'E.		1	yes
167	Jan. 4, 1944	Ronald Selby	North Beach, Durban, 29° 52'S. 31° 4'E.		1	yes
168	Jan. 20, 1944	Anthony Burn	North Beach, 29° 52'S. 31° 4'E.		1	yes
169	Feb. 29, 1944	N. S. Le Blanc	False Bay between the Strand and Muizenberg, 34° 8'S. 18° 27'E.		1	no
170	Mar. 15, 1944	Richard Field	Country Club Beach, Durban, 29° 52'S. 31° 4'E.		1	no
171	Mar. 26, 1944	Gabriel P. Botha	Country Club Beach, Durban, 29° 52'S. 31° 4'E.		1	no
172	Mar. 26, 1944	Geoffrey Best	North Beach, Durban, 29° 52'S. 31° 4'E.		1	yes
173	Mar. 7, 1945	David Drummond	Scotburgh, 37 miles south of Durban, 30° 20'S. 30° 40'E.		1	no
174	Jan. 24, 1946	Manduray	Snake Park, North Beach, Durban, 29° 52'S. 31° 4'E.		1	no
175	Jan. 24, 1946	Brian Gibson	North Beach, Durban, 29° 52'S. 31° 4'E.		1	no

176	Feb. 11, 1946	A. Varma	Battery Beach, Durban, 29° 52'S. 31° 4'E.	1	no
177	Feb. 16, 1946	Ernest Thompson	South Beach, Durban, " "	1	no
178	Jan. 5, 1947	Peter Knoop	Country Club Beach, Durban, 29° 52'S. 31° 4'E.	1	no
179	Mar. 9, 1947	Gabriel P. Botha	" " " "	1	no
180	Mar. 12, 1947	A. J. Kriel	" " " "	1	no
181	Apr. 11, 1947	Robert Douglass	Beach north of Umgeni R., 29° 50'S. 31° E.	1	no
182	Apr. 21, 1947	A. Nielsen	Country Club, Durban, 29° 52'S. 31° 4'E.	1	no
183	July 15, 1947	K. W. Dalldorf	North Beach, Durban, "	1	no
184	Feb. 11, 1950	Clive Dumayne	South Beach, Durban, "	1	yes;
185	Mar. 8, 1950	Brian Van Berg	North Beach, Durban, "	1	yes
186	May 24, 1950	Dr. R. L. Tibbit	Port Edward, 31° 5'S. 30° 10'E.	1	no
187	Jan. 21, 1951	Heneli Nkwazi	Native Beach, Durban, 29° 52'S. 31° 4'E.	1	yes
188	Mar. 15, 1951	Heinrich Stapelberg	South Beach, Durban, "	1	no
189	Nov. 28, 1951	George Plowman	Winkelspruit, 30° 21'S. 30° 50'E.	1	no
190	Nov. 29, 1951	Harold Tait	South Beach, Durban, 29° 52'S. 31° 4'E.	1	no
191	Jan. 1, 1954	Mrs. G. Rautenbach	Port St. John's, 31° 38'S. 29° 33'E.	1	no
192	Dec. 4, 1954	Graham Scott	Rocket Hut Beach, north of Umgeni R., 29° 50'S. 31° E.	1	no
193	Dec. 18, 1957	Robert P. Wherley	Karridene, 30° 15'S. 30° 40'E.	1	no
194	Dec. 20, 1957	Allan Green	Uvongo, 30° 45'S. 30° 25'E.	1	yes
195	Dec. 23, 1957	Vernon Berry	Margate, 30° 50'S. 30° 20'E.	1	yes
196	Dec. 30, 1957	Julia Painting	Margate, 30° 50'S. 30° 20'E.	1	no
197	Jan. 9, 1958	Derryck G. Prinsloo	Scottburgh, 30° 20'S. 30° 40'E.	1	yes
198	Apr. 3, 1958	N. F. Badenhorst	Port Edward, 31° 5'S. 30° 10'E.	1	yes
199	Apr. 5, 1958	Mrs. Fay Bester	Uvongo, 30° 45'S. 30° 25'E.	1	yes
402	Jan. 15, 1959	Mr. Fanie Schreuder	Melkbai Beach near Cape Town, 33° 55'S. 18° 25'E.	1	no
403	Dec. 23, 1958	Barry Geldenhuys	Melkbai Beach near Cape Town, 33° 55'S. 18° 25'E.	1	yes
404	Jan. 2, 1959	Eric Sutti	Lourenco Marques Bay, Mozambique, 26°S. 32° 35'E.	1	no
407	Feb. 1, 1959	Ramond Vermaak	Mouth of Umzimkulu R., near Port Shepstone, 30° 44'S. 30° 28'E.	1	no
436	Feb. 1951	Keith Huskisson	Port St. John's, 31° 28'S. 29° 33'E.	1	no
453	?	Man	Durban, Natal, 29° 52'S. 31° 4'E.	1	yes
454	?	Fisherman	" " " "	1	yes
455	?	Mr. Rodwell	" " " "	1	no

UNPROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	AFRICA	No. OF PEOPLE	FATAL
581	Oct. 7, 1959	Soldier	Off Xefina Island, about 20 miles from Lourenco Marques. 26°S. 32° 35'E.		1	yes
674	July 18, 1958	Sailor on tuna vessel <i>Seijn-Mari</i>	Port Kilindeni Mambasa, 4° 4'S. 39° 33'E.		1	yes
685	Apr. 30, 1960	Michael Hely	Inyoni Rocks, near Amanzimtoti, Natal, 30° 18'S. 30° 50'E.		1	no
764	Dec. 1947	Fisherman	Thiaroye, south of Dakar, Senegal, 14° 42'N. 17° 17'W.		1	yes
765	Oct. 7, 1956	Mr. Peron	N. Goree near Dakar, Senegal, 14° 42'N. 17° 17'W.		1	no
802	Dec. 24, 1960	Petrus Sithole	Margate, Natal, 30° 51'S. 30° 22'E.		1	yes
807	Jan. 6, 1961	Michael Land	Main Beach at Winkelspruit, Natal, S. Africa, 30° 21'S. 30° 50'E.		1	no
812	Jan. 22, 1961	Michael Murphy	Amanzimtoti, between Inyoni Rocks and river mouth. 30° 18'S. 30° 50'E.		1	no
818	Feb. 1, 1961	Geoffrey Zimmerman	Nahoon Beach, East London, 33°S. 27° 54'E.		1	yes
861	Feb. 5, 1961	Child (African)	Limpopo R., few miles down stream from crossing of the Lourenco Marques to Rhodesia Road. 24° 31'S. 33° 2'E.		1	no
887	Mar. 11, 1948	Anonymous	Between Joal and Sangomar, near Dakar. 14° 10'N. 16° 50'W.		1	?
898	1950-1951	Man	Liberia (Probably Monrovia), 6° 20'N. 10° 46'W.		1	?
899	1952-1954	Man, diver	West Breakwater, Monrovia, Free Port, Liberia. 6° 20'N. 10° 46'W.		1	yes
904	Apr. 9, 1961	Francisco Zimila	Xai Xai, about 100 miles north of Lourenco, Marques. 28° 13'S. 33° 38'E.		1	yes
905	Apr. 21, 1961	D. B. Dewar	Xai Xai, 28° 13'S. 33° 38'E.		1	no
947	Feb. 12, 1961	Derrick Benzoin	Queens Beach, Sea Point, South Africa. 33° 55'S. 18° 25'E.		1	no
952	Sept. 24, 1961	Yusuf Mohamed	Near Kivukoni College; Mombasa, East Africa, 6° 51'S. 39° 18'E.		1	no
986	Dec. 1942	Willem Bergh	Cape Town, 33° 56'S. 18° 28'E.		1	yes
993	Dec. 28, 1961	Glynn Wessels	Umhlanga Rocks, near Durban, 29° 44'S. 31° 5'E.		1	no

1016	Feb. 5, 1962	Reece F. Nielsen	Winkelspruit, South Africa, 30° 21'S. 30° 50'E.	1	yes
1017	Feb. 7, 1962	Clifford Hoogvorst	Winkelspruit, 30° 21'S. 30° 50'E.	1	yes
1033	Apr. 7, 1962	John Blane	Willard Beach (approx. 30 miles N. of Durban), 29° 29'S. 31° 15'E.	1	no
1034	Apr. 9, 1962	Brian Lawrence Martin	Xai Xai, Portuguese East Africa, 28° 13'S. 33° 38'E.	1	no
1060	?Apr. 1952	Hans Hass	Sudan, Suakin Harbor, 19° 8'N. 37° 17'E.	1	no
1097	1920	Dr. E. G. Pells	Cape Town, Pier, 33° 55'S. 18° 25'E.	1	no
1098	Easter 1934	Alan Donald McArthur	Winkelspruit, 30° 21'S. 30° 50'E.	1	no
1099	Two days after Easter 1934	Boy	Winkelspruit, Granny's Pool, 30° 21'S. 30° 50'E.	1	yes
1102	1942	Young student	Atlantic, Clifton Beach, Cape Town, 33° 56'S. 18° 24'E.	1	yes
1117	Sept. 13, 1962	John McIver	Off Coast of West Africa, South Atlantic	1	yes
1151	Jan. 6, 1963	Clive Passmore	Umhloti, Selection Reef, about 200 yards offshore, 29° 40'S. 31° 7'E.	1	no

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	ASIA	NO. OF PEOPLE	FATAL
254	July 15, 1898	Somali boatman	Aden, Saudi Arabia, 12° 45'N. 45°E.		1	yes
258	Aug. 30, 1938	Ulric Baker	Tsing-Tao, North China, 36° 3'N. 120° 22'E.		1	yes
259	June 18, 1949	Japanese fisherman	Between Tientsin and Hong Kong, China		1	yes
295	Sept. 1945	Sergeant Stanley H. W. Jackson	Hong Kong. 22° 20'N. 114°E.		1	yes
296	Sept. 25, 1953	Sailor	" " "		1	yes
297	June 1954	James Cook	" " "		1	yes
298	Sept. 17, 1954	Royal Navy, seaman	Junk Bay, Hong Kong, 22° 18'N. 114° 15'E.		1	yes
299	Jan. 21, 1955	Native boy	" " "		1	yes
300	May 2, 1880	Sasti	Barrackpore, Hoogly R., India, 22°N. 88°E.		1	yes
301	May 2, 1880	Woman	India (probably near Calcutta)		1	yes
302	May 14, 1880	Haboo	Hoogly R., 22°N. 88°E.		1	no
303	May 15, 1880		Ganges R., India, about 22°N. 88°E.		1	no

UNPROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	ASIA	NO. OF PEOPLE	FATAL
304	1880	Anonymous (in one year)	Lower Hoogly R., 22°N. 88°E.		20 ±	yes & no
305	?	Man	Malwan, near Ratnagiri, 16° 59'N. 73° 18'E.		1	yes
306	Feb. 4, 1955	Nedugattan	Vanagir, Madras, India, 13° 5'N. 80° 17'E.		1	no
307	Feb. 5, 1945	British constable	Tel Aviv, Israel, 32° 3'N. 34° 46'E.		1	no (About)
337	1949	Anonymous	Karun R. near Ahwaz, Persian Gulf, 31° 29'N. 48° 43'E.		27	14 yes
338	1945-6	Anonymous	Persian Gulf, about 26°N. 51°E.		9	no
339	1946	Arab woman	" " "		1	no
362	July 7, 1955	Mrs. W. F. Dixon	Off Aden, about 12°N. 45°E.		1	yes
364	1926	Woman	Sea View Beach, Singapore, 1° 20'N. 103° 52'E.		1	yes
365	1950	Abdullah, diver	Singapore Hbr., 1° 20'N. 103° 53'E.		1	yes
366	?	Swimmer	Keppel Hbr. 2 miles from Singapore, 1° 16'N. 103° 50'E.		1	no
367	July 29, 1954	C. B. Larkin	Singapore Harbor, 1° 20'N. 103° 50'E.		1	yes
443	?	Mr. Masury	? Asia		1	no
639	July-Sept. 1959	35 persons	Machgaon, near mouth of Devi R., India, 19° 59'N. 86° 24'E.		5	yes
695	Aug. 1950	Pearl diver	Ras-at-Tannura, Persian Gulf, 26° 59'N. 50° 23'E.		30	no
696	1940-1950	" "	" "		1	?
697	1940-1950	" "	" "		1	no
698	1940-1950	Fisherman diver	" "		1	no
699	1940-1950	Pearl diver	" "		1	no
781	1941-1951	Soldier (British)	Rocky rapids near Ahwaz, 31° 29'N. 48° 43'E.		1	yes
782	Sept. 1941	Gurkha soldier	Near Shatt-el-Arab, Junction Tigris and Euphrates Rivers, 30° 46'N. 47° 39'E.		1	no
783	1941	Persian boy	Fresh-water river Ahwaz, 31° 29'N. 48° 43'E.		1	yes
784	1941-1951	Fisherman	Karun River, near Ahwaz, 31° 29'N. 48° 43'E.		1	yes

785	1941-1951	Man (old)	Ahwaz, 31° 29'N. 48° 43'E.	1	yes
795	Before 1878	Indian	Hooghly near Calcutta, India, 22°N. 88°E.	1	no
872	May 18, 1870	H.E.S.	Hatkolah? Ghat, India, about 22°N. 88°E.	1	no
877	May 11, 1870	Man	Sobah Bazar, about 22°N. 88°E.	1	no
878	June 1, ?1870	Ooryah	Hooghly River at Ghat, 22°N. 88°E.	1	no
879	June 19, ?1870	Man	Hooghly River at Ghat, 22°N. 88°E.	1	no
880	May 13, 1868	Man	Hooghly River at Ghat, 22°N. 88°E.	1	yes
881	Mar. 24, 1871	Deno	Hooghly River at Mutiah, 22°N. 88°E.	1	yes
920	Aug. 19, 1945	Abdol Karmi	Abudan, Persia, 30° 20'N. 48° 15'E.	1	no
921	Sept. 6, 1945	Hamid	Bahmashir, Persia, 30°N. 48° 30'E.	1	no
934	Aug. 29, 1938	William Baker	Tsingtao, China, 36° 4'N. 120° 22'E.	1	yes
936	Sept. 7, 1961	I. Padden	Khark Island (Kharg I.) Persian Gulf, 29° 14'N. 50° 20'E.	1	no
968	July 28, 1954	British Navy diver	Singapore Harbor, 1° 2'N. 103° 50'E.	1	yes
1004	1595	Sailor	Cochin R., Madras, India, 9° 58'N. 76° 15'E.	1	?

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	ATLANTIC OCEAN	No. of PEOPLE	
					FATAL	No. FATAL
201	1942	Herbert J. Mann	Cal Sal Bank, Bahama Islands, 23° 43'N. 80° 25'W.	1	no	
223	May 1939	John Heagan	Several hundred miles southeast of Cape Henry, Virginia	1	yes	
256	Aug. 1948	Francis Edmund Blanc	Bimini, Bahama Islands, 25° 46'N. 79° 14'W.	1	no	
257	July 3, 1954	Lt. E. M. Marks	Elbow Beach, Bermuda, 32° 19'N. 64° 47'W.	1	no	
262	June 1898	Man	Santiago, Cuba, 20°N. 75° 49'W.	1	yes	
263	July 21, 1930	Prof. Jorge Grent	La Playa Beach, Havana, Cuba, 23° 8'N. 82° 25'W.	1	yes	
264	Aug. 23, 1931	Rodriguez Laureano	Miramar, Havana, Cuba, 23° 8'N. 82° 25'W.	1	yes	
265	Oct. 10, 1931	Manuel Romero	Havana, Cuba, 23° 8'N. 82° 25'W.	1	yes	
266	May 1956	Russ Shearman	Cuba, about 23°N. 82°W.	1	yes	
278	1896	Syrian boy	Cap-Haitien, Haiti, 19° 47'N. 72° 17'W.	1	no	
279	Aug. 22, 1921	E. C. P. (U.S. Marine)	Cap-Haitien, Haiti, 19° 47'N. 72° 17'W.	1	yes	

UNPROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	ATLANTIC OCEAN	NO. OF PEOPLE		FATAL
310	Mar. 1922	Girl	Jamaica, about 16°N. 76°W.		1	yes	
311	May 1922	Young Frenchman	Savanna-la-Mer, Jamaica, 18° 12'N. 78° 8'W.		1	yes	
355	Dec. 15, 1922	Miss Bourne	San Juan, Puerto Rico, 18° 29'N. 68° 8'W.		1	yes	
356	Feb. 1923	Puerto Rican	" " "		1	no	
357	Nov. 21, 1924	Prof. J. R. Winslow	" " "		1	yes	
358	May 1925	Student	Condado Beach, San Juan, 18° 29'N. 68° 8'W.		1	no	
359	Nov. 1, 1925	Lawyer (man); secretary (woman)	" " " " "		2	no	
360	July 5, 1952	Juan Suarez Morales	Mona Island near El Capital, Puerto Rico, 18° 6'N. 67° 54'W.		1	no	
361	July 28, 1956	Jose Alengo	Aquadilla, near Isabela, Puerto Rico, 18° 30'N. 67°W.		1	yes	
385	July 14, 1950	Johan Loekstad	Off Cuba in Caribbean		1	no	
392	Apr. 22, 1926	Thomas Madison from ship <i>Ripley's Castle</i>	Mid-Atlantic		1	no	
396	1959	Charlie Green	Aux Cayes, Haiti, 18° 11'N. 73° 44'W.		1	no	
412	Oct. 12, 1907	William Thomas	Havana Harbor, Cuba, 23° 7'N. 82° 25'W.		1	no	
419	Sept. 1904	Sailor from ship <i>Mohilla</i>	Nuevitas Harbor, Cuba, 21° 34'N. 77° 18'W.		1	yes	
420	1898	Five soldiers			4	yes	
687	Mar. 30, 1952	A. J. Eagink	Curacao, Lesser Antilles, 12°N. 68° 40'W.		1	no	
708	May 29, 1960	Eddie Dawkins	Off Porvenir Island, San Blas Islands, Caribbean Sea, 9° 34'N. 78° 58'W.		1	no	
714	May 24, 1960	Louis Gorian	Coral Beach, Bermuda, 32° 19'N. 64° 47'W.		1	no	
720	1954	Bernard Vieux	Martinique, 14° 40'N. 61°W.		1	no	
723	?	Ross Doe	Paget, Bermuda, 32° 19'N. 64° 47'W.		1	no	
766	July 1958	Stanton A. Waterman	Walker Cay, Bahama Islands, 27° 17'N. 78° 25'W.		1	no	
767	?	Sponge diver	Andros Island, 24° 14'N. 77° 37'W.		1	no	

790	1939	Hans Hass	Ascension Bay, Curacao, 12°N. 68° 40'W	1	no
796	1957	William Bolster	Havana, Cuba, 23° 9'N. 82° 21'W.	1	yes
798	1945	Boy	Cojimar, Cuba, 23° 10'N. 82° 15'W.	1	yes
810	Nov. 21, 1929	Gamatano Yugoago	Cienfuegos, Cuba, 22° 10'N. 80° 27'W.	1	no
838	Jan. 21, 1928	Two Stowaways on ship	Off Florida Coast, Gulf of Mexico, about 28°N. 83°W.	2	yes
840	Dec. 14, 1949	Russell Anthony Latona	Off North Coast of Cuba, about 23°N. 81°W.	2	1 yes 1 no
865	Unknown	Bent Jeppesen	Cojimar, Cuba, 23° 10'N. 82° 15'W	1	yes
867	Unknown	Sandrillio	Coast of Cuba about 22°N. 80°W.	1	yes
873	1960	Cuban	Between Key West and Guantanomo Bay, Cuba, about	1	yes
		Man	22°N. 81°W.	1	yes
953	May 3, 1933	Sailor	Off Jaimanitas Yacht Club, Havana, Cuba.	1	yes
957	Aug. 4, 1961	Robert K. Sato	23° 7'N. 82° 25'W.	1	no
963	June 19, 1935	Manuel Chalor	West end of Bermuda, 32° 18'N. 64° 42'W.	1	no
984	Sept. 1941	Man	50 miles off New Jersey Coast, about 40°N. 73°W.	1	no
989	Aug. 6, 1932	George Vanderbilt	Atlantic Ocean	1	no
990	Aug. 25, 1931	Pablo Medina	Nassau, 25° 5'N. 77° 20'W.	1	no
1026	?1950	Two boys	Havana, Cuba, 23° 9'N. 82° 21'W.	1	yes
1040	1956	Gabriel Echavarria	Cuba, West Indies	2	no
1087	Feb. 16, 1961	British sailor	Islas del Rosario, southwest of Cartagena, 10° 24'N. 75° 33'W.	1	no
1120	Sept. 30, 1962	Wesley U. Vickrey	Jamaica, 18°N. 77°W.	1	yes
			British West Indies, Grand Turk Island, 21° 31'N. 71° 29'W.	1	no

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	No. of people	
				AUSTRALIA*	FATAL
1	Jan. 9, 1919	Richard Simpson	Sydney Harbor, 33° 51'S. 151° 12'E.	1	yes
2	Jan. 17, 1919	Douglas Arkell	Newcastle Beach, 32° 56'S. 151° 48'E.	1	no

* Includes Tasmania.

UNPROVOKED SHARK ATTACKS (Continued)

CAST NO.	DATE	NAME OF VICTIM	LOCALITY	AUSTRALIA	No. of PEOPLE		FATAL
3	Dec. 8, 1919	James Ridley	Pelican I.. Macleay R..	30° 57'S. 153° 1'E.	1	yes	
4	Jan. 18, 1920	David Miller	Throsby Creek. Newcastle Harbor.	32° 53'S. 151° 48'E.	1	yes	
5	Jan. 13, 1922	Alwyn Bevan	Stockton Beach, Newcastle.	32° 54'S. 151° 48'E.	1	no	
6	Feb. 4, 1922	Milton Coughlan	Coogee, Sydney.	33° 55'S. 151° 12'E.	1	yes	
7	Mar. 3, 1922	Mervyn Gannon	Coogee.	33° 55'S. 151° 12'E.	1	yes	
8	Jan. 19, 1924	Charles Brown	Camellia, Parramatta R..	33° 49'S. 151° 18'E.	1	yes	
9	Feb. 13, 1924	Nita Derritt	Bronite.	33° 54'S. 151° 12'E.	1	no	
10	Mar. 12, 1925	Jack Canning	Newcastle Beach.	32° 56'S. 151° 48'E.	1	yes	
11	Mar. 27, 1925	Jack Dagworth	Coogee.	33° 55'S. 151° 12'E.	1	no	
12	Jan. 4, 1927	Mervyn Allum	Grey's Point, Port Hacking.	34° 5'S. 151° 12'E.	1	yes	
13	Jan. 1, 1927	Edward Pritchard (Same as Ted Pritchard)	Merewether Beach, Newcastle.	32° 58'S. 151° 48'E.	1	no	
14	Apr. 4, 1928	Arthur Lane	Cook's Hill, Newcastle.	32° 57'S. 151° 48'E.	1	yes	
15	Apr. 14, 1928	Maxwell Steele	Bondi.	33° 54'S. 151° 14'E.	1	no	
16	Jan. 12, 1929	Colin James Stewart	Bondi.	33° 54'S. 151° 14'E.	1	yes	
17	Feb. 8, 1929	John Gibson	Bondi.	33° 54'S. 151° 14'E.	1	yes	
18	Feb. 18, 1929	Allan Butcher	Maroubra Bay.	33° 57'S. 151° E.	1	yes	
19	Dec. 16, 1929	Nancy Thom	Collaroy.	33° 44'S. 151° E.	1	no	
20	Dec. 26, 1929	Wm. Oakley	White Bay, Sydney Harbor.	33° 52'S. 151° 12'E.	1	yes	
21	Dec. 25, 1930	James Knight	Homebush Bay. Parramatta R..	33° 49'S. 151° 18'E.	1	no	
22	Oct. 31, 1932	Reginald Ogilvie	Redhead Beach, near Newcastle.	33° 2'S. 151° 48'E.	1	no	
23	Jan. 7, 1934	Colin Grant	Queenscliff.	33° 47'S. 151° E.	1	no	
24	Jan. 27, 1934	Wallace John McCutcheon	George's R.. 20 miles above mouth,	33° 58'S. 151° E.	1	yes	
25	Mar. 12, 1934	Athol Riley	Dec Why.	33° 45'S. 151° E.	1	yes	
26	Apr. 1, 1934	Leon Hermies	North Steyne.	33° 47'S. 151° E.	1	yes	
27	Dec. 23, 1934	Roy Inman & Miss Inman	Horsefield Bay, Brisbane.	33° 29'S. 153° E.	1	no	

28	Dec. 31, 1934	Richard George Soden	George's R. at Moorebank, 33° 57'S. 152° E.	yes
29	Dec. 31, 1934	Beryl Morrin	George's R. at Kentucky, 34° 1'S. 152° E.	no
30	Feb. 14, 1935	Darcy Lorenz	Austinner, 34° 18'S. 151° E.	no
31	Mar. 2, 1935	Herbert McFarlane	North Narrabeen Beach, 33° 42'S. 151° E.	yes
32	Mar. 9, 1935	Ernest MacDonald	Maroubra Beach, 33° 57'S. 151° E.	yes
33	Feb. 4, 1936	David Patton	South Steyne, 33° 48'S. 151° E.	yes
34	Dec. 12, 1936	George Lundberg	Throsby Creek, Newcastle Harbor, 32° 55'S. 151° E.	yes
35	Feb. 13, 1937	John Welsh	Bar Beach, Newcastle, 32° 57"S. 151° E.	yes
36	Oct. 23, 1937	Thomas McDonald	Byron Bay Beach, 28° 38'S. 153° E.	no
37	Oct. 27, 1937	Norman Girvan & Jack Brinkley	Kirra Beach, Coolangatta, 28° 10'S. 153° E.	yes
38	Jan. 14, 1938	Alan Murray	Lady Martin's Beach, Sydney Harbor, 33° 52'S. 151° E.	no
39	Dec. 28, 1939	Percy Carroll	Cabramatta Creek, George's R., 33° 58'S. 151° E.	no
40	Jan. 23, 1940	Maxwell Farrin	North Brighton, Botany Bay, 33° 57'S. 151° E.	yes
41	Feb. 4, 1940	John Eke	North Brighton, 33° 57'S. 151° E.	yes
42	Dec. 28, 1940	Clarence Hammond	Stockton Beach, Newcastle, 32° 54'S. 151° E.	yes
43	Jan. 4, 1942	Zita Steadman	Egg Rock, Bantry Bay, 33° 47'S. 151° E.	yes
44	Dec. 26, 1942	Denise Burch	Bantry Bay, near Ironstone Pt., 33° 47'S. 151° E.	yes
45	Jan. 14, 1944	Peter Weir	First Beach, Forster, 32° 10'S. 151° E.	no
46	Jan. 7, 1946	Valma Tegel	Oatley Bay, near Como, George's R., 34° S. 152° E.	yes
47	Oct. 14, 1946	Douglas Blackmore	Swan Bay, Mark's Pt., Lake Macquarie, 33° 10'S. 152° E.	no
48	Nov. 8, 1947	Edwin and Rupert Elford	Maria River, Port Macquarie, 31° 24'S. 153° E.	yes
49	Feb. 12, 1948	Ronald Johnson	Stockton Beach, Newcastle, 32° 54'S. 151° E.	no
50	Jan. 23, 1949	Ray Land	Bar Beach, Newcastle, 32° 57'S. 151° 48'E.	yes
51	Dec. 6, 1951	Francis A. Okulich	Merewether Beach, 32° 58'S. 151° 48'E.	yes
52	Feb. 27, 1954	Reginald Fabrizius	The Entrance, Swansea Bridge, Lake Macquarie, 32° 20'S. 152° E.	yes
53	Jan. 17, 1955	John Willis	Wyargine Pt., off Balmoral, Sydney, 33° 49'S. 151° E.	yes
54	Feb. 5, 1955	Bruno Rautenberg	Sugarloaf Bay, Middle Harbor, Sydney, 33° 48'S. 151° E.	yes
55	Mar. 9, 1955	N. Langford	Wamberal near channel of Wamberal Lake, 33° 30'S. 151° E.	yes
56	Apr. 23, 1957	Paul Wilson	Merewether Beach, Newcastle, 32° 55'S. 151° 48'E.	no
57	May 11, 1957	Leonard Higgins	Tea Gardens near Yakaba Head, near Newcastle, 32° 42'S. 151° 4'E.	no
58	Jan. 5, 1919	Jack Hoey	Ross Creek, Townsville, 19° 15'S. 146° 50'E.	yes

UNPROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	AUSTRALIA	No. OF PEOPLE FATAL	
59	Mar. 8, 1920	Alfred Burgess	Bay Rock, Cleveland Bay, 16 miles from Townsville, 19° 7'S. 146° 45'E.		1	no
60	Nov. 27, 1921	Herbert Jack & George S. Jack	Gay's Corner, Bulimba Beach, Brisbane R., 27° 27'S. 153° E.		1	yes
61	Jan. 15, 1922	Robert Milroy	Ross Creek, Townsville, 19° 15'S. 146° 50'E.		1	no
62	Dec. 5, 1922	Alfred Gassman	Pialba Beach, Maryborough, 25° 20'S. 152° 44'E.		1	yes
63	Jan. 27, 1929	Harry Weatherell	Alma Bay, Magnetic I., Townsville, 19° 7'S. 146° 50'E.		1	yes
64	Sept. 1, 1929	Edward Wm. Hobbs	Ross Creek, Townsville, 19° 15'S. 146° 50'E.		1	yes
65	Jan. 7, 1931	Stanley Roser	Yeppoon, near Rockhampton, 23° 6'S. 150° 31'E.		1	no
66	Mar. 22, 1931	Arthur Tomida	Ross Creek, Townsville, 19° 15'S. 146° 50'E.		1	yes
67	Jan. 4, 1933	Stanley Victor Locksley	Strand Beach, Townsville, 19° 14'S. 146° 50'E.		1	yes
68	Jan. 15, 1934	Frank Ilett	Elephant Rock, Currumbin, near Southport, 28° 8'S. 153° 29'E.		1	no
69	Aug. 26, 1934	Robert Steele	Cardwell in open sea, 18° 16'S. 146° 7'E.		1	yes
70	May 16, 1937	Wm. Tennant	Ross Creek, Townsville, 19° 15'S. 146° 50'E.		1	yes
71	Dec. 21, 1939	Frank Gurran	Rubbish Dump Creek, Mackay, 21° 9'S. 149° 13'E.		1	yes
72	Jan. 15, 1940	Douglas Bright	Southport, 27° 56'S. 153° 29'E.		1	no
73	Sept. 12, 1942	A. Wearne	Trinity Beach, Cairns, 16° 44'S. 147° E.		1	no
74	June 15, 1945	Serviceman	Trinity Beach, Cairns, 16° 44'S. 147° E.		1	yes
75	Jan. 17, 1946	Donald Vaughan	Townsville, 19° 14'S. 146° 50'E.		1	no
76	Apr. 19, 1946	Robert McAuliffe	Trinity Beach, Cairns, 16° 44'S. 147° E.		1	yes
77	Aug. 18, 1946	Phillip South Collin	Ellis Beach, 20 miles from Cairns, 16° 41'S. 147° E.		1	yes
78	Dec. 26, 1948	Eric Keys	King's Beach, Coloundra, 26° 14'S. 153° 10'E.		1	yes
79	Apr. 17, 1949	Richard Joseph Maguire	Ellis Beach, 20 miles from Cairns, 16° 41'S. 147° E.		1	yes
80	Aug. 28, 1949	James Howard and Brian Ware	Yorkey's Knob Beach, near Cairns, 16° 49'S. 147° E.		1	no
81	Nov. 25, 1950	Leo Vincent Ryan	Burleigh Heads near Brisbane, 28° 6'S. 153° E.		1	no

82	Dec. 16, 1950	Desmond Quinlan	Palm Beach North, 28° 7'S., 153° E.	yes	1
83	Oct. 22, 1951	Arthur James Kenealey	Kissing Pt., Ocean Baths, Townsville, 19° 14'S., 146° 50'E.	yes	1
84	Dec. 13, 1953	Neil Tapp	Palm Beach near Brisbane, 28° 7'S., 153° E.	no	1
85	Feb. 26, 1956	Barry Keither Antonini	Pioneer R., near Mackay, 21° 9'S., 149° 13'E.	yes	1
86	Aug. 16, 1949	R. Kay	Flinders I., Bass Str., 40° S., 147° 45'E.	no	1
87	Oct. 1934	Aboriginal woman	Redcliff, Coburg Peninsula, 11° 20'S., 133° E	yes	1
88	Mar. 8, 1938	Aboriginal man	Liverpool R., 12° 2'S., 134° 15'E.	no	1
89	Oct. 28, 1947	Dan (aboriginal)	Mornington I., Gulf of Carpenteria, 16° 33'S., 139° 48'E.	no	1
90	Mar. 17, 1926	Primrose Whyte	Near West Beach, Brighton, Adelaide, 34° 55'S., 138° 25'E.	yes	1
91	Jan. 22, 1936	Ray Bennett	West Beach, Adelaide, 35° 1'S., 138° 25'E.	yes	1
92	Dec. 28, 1946	Leo Strenz	Glenelg, 34° 59'S., 138° 29'E.	no	1
93	Feb. 15, 1930	Norman Clarke	North Brighton, Port Phillip, 35° 37'S., 144° 37'E.	yes	1
94	1936	Man	Port Melbourne, Port Phillip Bay, 38° S., 145° E.	yes	1
95	Apr. 4, 1936	John Wishart	Portsea Beach, near entrance Port Phillip,	yes	1
96			38° 19'S., 144° 37'E.	yes	1
97			Scot's College, Swan River, 31° 59'S., 115° 52'E.	yes	1
98	Jan. 27, 1923	Charles Robertson	Cottesloe Beach, Fremantle, 32° S., 115° 52'E.	yes	1
99	Nov. 22, 1925	Samuel Titton	City Beach, Perth, 31° 57'S., 115° 52'E.	no	1
100	Feb. 10, 1946	R. D. Sunderland	Broome, 17° 58'S., 122° 14'E.	no	1
101	May 16, 1949	Mary Passaris	Barrier Reef	yes	1
102	1920	Japanese divers	Condon, 20° 2'S., 118° 35'E.	yes	1
103	Nov. 23, 1923	Koepang Islanders	North Queensland, about 10° S., 142° E.	no	1
104	Oct. 16, 1923	Anamo, pearl diver	North Queensland, about 10° S., 142° E.	no	1
105	Nov. 17, 1926	Noma, pearl diver	Thursday I., 10° 35'S., 142° 13'E.	no	1
106	1927	Dick Lahou, pearl diver	North Queensland, about 10° S., 142° E.	no	1
107	Apr. 8, 1927	Iseromi, pearl diver	North Queensland, about 10° S., 142° E.	no	1
108	Apr. 10, 1927	Napoleon Doola, diver	Torres Strait, near Cooktown, 15° 28'S., 145° 20'E.	yes	1
109	May 1927	Willie Poid	North Queensland, about 10° S., 142° E.	no	1
110	July 11, 1928	Ruchben, pearl diver	North Queensland, about 10° S., 142° E.	yes	1
111	Dec. 21, 1928	Schoolboy	Dauan Island, Torres Str., 9° 25'S., 142° 32'E.	yes	1
112	Mar. 12, 1929	Ned Luffman	Badu Island, Torres Str., 10° 7'S., 142° 9'E.	yes	1
113	Apr. 4, 1929	Johnny Moira	North Queensland, about 10° S., 142° E.	no	1
114	May 31, 1929	Iifu, pearl diver	Badu Island, 10° 7'S., 142° 9'E.	no	1
115	Oct. 20, 1929				1

UNPROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	AUSTRALIA	No. OF PEOPLE	FATAL
116	Dec. 13, 1928	Nago, pearl diver	Near Thursday Island, 10° 35'S. 142° 13'E.		1	no
117	Feb. 20, 1930	Jerry, pearl diver	" " "		1	no
118	June 4, 1929	Ibigan	Mabuiag Island (Mobyag I.), Torres Str. 10°S. 142° 11'E.		1	yes
119	Jan. 14, 1931	Albertus, pearl diver	Australia		1	no
120	Nov. 28, 1931	Albert Mainlander	Barrier Reef near Innisfail, 17° 32'S. 146° 4'E.		1	no
121	May 1932	Nishi, pearl diver	Near Thursday Island, about 10°S. 142°E.		1	no
122	May 12, 1932	Henry Solomon	Warrior Reefs, 9° 35'S. 143° 10'E.		1	yes
123	Aug. 9, 1932	Jack Giblett	Torres Str.. 10°S. 143°E.		1	no
124	Dec. 15, 1933	Tumai, diver	Barrow Pt., 100 miles N. Cooktown, 14° 22'S. 144° 39'E.		1	no
125	Feb. 20, 1933	Wanewa	Barrow Pt.. 14° 22'S. 144° 39'E.		1	yes
126	Nov. 18, 1933	Alfred Anita	Barrow Pt., 14° 22'S. 144° 39'E.		1	no
127	Nov. 20, 1933	Bili	Boydong Cay, 11° 28'S. 143° 1'E.		1	yes
128	Feb. 24, 1934	Rixon	Adolphus Channel, 10° 40'S. 143° 30'E.		1	no
129	Oct. 2, 1934	David Younger	Warrier Reefs, 9° 35'S. 143° 10'E.		1	yes
130	Mar. 20, 1935	Kosam	Three Mile Reef off Lizard I.. 50 miles N. of Cooktown, 14° 40'S. 145° 23'E.		1	no
131	Mar. 30, 1935	Samuel Andrew	Barrier Reef, 100 miles from Mackay, 21°S. 152°E.		1	no
132	May 12, 1935	Barani	Warrior I., 9° 48'S. 143° 10'E.		1	no
133	Aug. 12, 1935	James Messot	Warrior Reefs, Torres Str.. 9° 35'S. 143° 10'E.		1	yes
134	Nov. 13, 1935	Norman	Barrier Reef near Innisfail, 17° 32'S. 146° 4'E.		1	no
135	Mar. 19, 1936	Guisne Oscoto	Forbes I.. Barrier Reef, 12° 17'S. 143° 22'E.		1	no
137	Apr. 21, 1936	Willie and Cocatoo	Arlington Reef near Green I., 16° 43'S. 146° 5'E.		1	no
138	June 26, 1936		Nepean I., 9° 34'S. about 142°E.		1	yes
139	July 7, 1936	Aboriginal diver	Near Thursday I., 10° 35'S. 142° 13'E.		1	no
140	Aug. 24, 1936	Tala Lui	Mabuiag I. (Mobyag I.), 10°S. 142° 11'E.		1	no
142	Aug. 3, 1937	Iona Asai	Mabuiag I. 10°S. 142° 11'E.		1	no

143	Nov. 1937	N. Kris	1	?
144	July 1938	Okada	1	yes
145	1938	Sammy	1	no
146	Jan. 1, 1940	Native diver	1	no
147	May 9, 1942	Abraham Johnson	1	no
148	Nov. 20, 1946	Esona Johnson	1	yes
149	Nov. 1948	Metuela Mau	1	no
150	1954	Kapua Gutchen	1	yes
151	June 29, 1954	Morslem Aken	1	no
152	Jan. 1956	Stephen Conedo	1	no
153	May 1956	Diver	1	no
154	Feb. 2, 1957	Japanese	1	? yes
155	Apr. 13, 1957	Tui Sapua Nomoa	1	no
383	Jan. 17, 1959	Brian J. Derry	1	yes
388	Jan. 24, 1959	John Grave	1	no
394	Jan. 17, 1959	Peter John Neil	1	no
421	Jan. 24, 1935	A youth	1	no
429	Apr. 11, 1959	James Pearson	1	no
445	?	Fisherman	1	yes
446	?	Fisherman	1	yes
447	?	Arab boy	1	yes
448	?	Boy	1	yes
449	Jan. 31, 1959	George E. Rudd and Jack Glyn	2	no
458	Mar. 1803	M. Lefevre	1	yes
460	Jan. 6, 1835	Man	1	no
461	Jan. 7, 1837	Alfred Australia Howe	1	yes
463	1840	Man	1	yes
464	1842	Man	1	no
465	?1847	Native	1	no
		Hinchinbrook, 18° 23'S. 146° 22'E.		
		Bathurst I., 14° 17'S. 144° 20'E.		
		Torres Str., 10°S. 143°E.		
		Malagigi, Barrier Reef		
		Barrier Reef, off Cairns, 16° 55'S. 147°E.		
		Thursday I., 40 miles off, 10° 35'S. 142°E.		
		Saibai I., 80 miles N. of Cape York, 9° 24'S. 142° 40'E.		
		Near Thursday I., 10° 35'S. 142°E.		
		Near Cairns, 16° 55'S. 146°E.		
		Near Thursday I., 10° 35'S. 142°E.		
		Torres Str., 10°S. 143°E.		
		Cape Leyèque, 16° 24'S. 122° 55'E.		
		Harvey I. Harbor, Torres Str., 11° 59'S. 143° 15'E.		
		Safety Cove, Port Arthur, southern Tasmania,		
		43° 8'S. 147° 50'E.		
		Whale Bay (probably Whale Cove at Port Davey) Tasmania,		
		about 43° 20'S. 146°E.		
		Alexandria Headland, 67 miles north of Brisbane,		
		21° 58'S. 149° 40'E.		
		Off Ben Buckler, near Sydney, 33° 52'S. 151° 12'E.		
		Cocoanut I., 100 miles east of Thursday I., Torres Str.,		
		10° 35'S. 143° 4'E.		
		Australia		
		Australia		
		Sydney, 33° 52'S. 151° 12'E.		
		Australia		
		South Perth, 32° 7'S. 115° 44'E.		
		Hamelin Hbr., W. Australia at Faure I.. 34° 12'S. 115° 9'E.		
		Tasman Sea, 35° 39'S. 165° 8'E.		
		Macleay R., 50 miles from Hbr., 30°S. 153°E.		
		Sydney Harbor, 33° 52'S. 151° 12'E.		
		Sydney Harbor, 33° 52'S. 151° 12'E.		
		Moreton Bay, 27° S. 153° 20'E.		

UNPROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	AUSTRALIA	No. of PEOPLE		FATAL
					1	1	
466	Dec. 9, 1849	Man	Sydney Harbor, 33° 52'S. 151° 12'E.		1	yes	
467	Jan. 10, 1863	David Brown	Manning R., Bellannahinch, 31° 51'S. 152° 46'E.		1	yes	
468	21871	Man	" " "		1	yes	
469	1871	Native fishermen	Jervis Bay and Long Reef, 33° 52'S. 151° 12'E.		2	no	
470	1871	Man	Brisbane River, 27° 28'S. 153° E.		1	no	
471	Feb. 6, 1876	P. Rooney	Victoria, 39° S. 145° E.		1	yes	
473	1878	Boy	Sydney, 33° 52'S. 151° 12'E.		1	no	
474	?1870	Lt. Bowyer	Derwent, 42° 52'S. 147° 20'E.		1	no	
475	1882	Man	Maryborough, 25° 23'S. 152° 44'E.		1	no	
476	1884	Miss Warren	Port Pirie, 33° 11'S. 138° 1'E.		1	yes	
477	1892	A. Rotaman	Torres Str., Badu I., 10° 7'S. 142° 9'E.		1	yes	
478	?	Ted, a diver	South of Dampier Archipelago, 20° 29'S. 117° E.		1	no	
479	1897	Mr. Hewson	Bondi, 34° S. 151° 14'E.		1	no	
481	Jan. 6, 1912	Man	Sydney, 33° 52'S. 151° 12'E.		1	no	
483	Jan. 26, 1912	J. E. Morgan	Lane Cove River, Sydney, 33° 52'S. 151° 12'E.		1	yes	
485	Feb. 19, 1912	Fred Worr	Coogee, 33° 55'S. 151° 12'E.		1	no	
486	1913 or 1914	Young man	Sirius Cove, Sydney, 33° 52'S. 151° 12'E.		1	yes	
487	Jan. 1, 1915	W. Toone	Sirius Cove, 33° 52'S. 151° 12'E.		1	no	
488	Jan. 1913	Treacle	Thursday I., 10° 35'S. 142° 13'E.		1	no	
489	Dec. 8, 1916	W. C. G. (man)	Sydney, 33° 52'S. 151° 12'E.		1	no	
490	Mar. 22, 1918	Arthur Cook	Newcastle, 32° 58'S. 151° 48'E.		1	no	
491	Nov. 20, 1919	Man in boat	Darwin, 12° 28'S. 130° 51'E.		1	no	
492	Oct. 20, 1922	Man	Botany Bay, 34° S. 151° 14'E.		1	yes	
493	June 16, 1923	3 men & J. Rigby	Bellambi, 34° 20'S. 150° 57'E.		3	yes	
497	Apr. 25, 1924	Ernest Conroy	Kiama, 34° 40'S. 150° 53'E.		1	no	
499	Oct. 1924	Man	Port Melbourne, Victoria, 39° S. 145° E.		1	yes	

500	June 17, 1925	Human arm in shark	Princess Royal Harbor, near King George's Sound, 42° 58'S. 147° 49'E.	yes
501	Oct. 1927	Man and horse	Kish R., Eden. 37° 4'S. 149° 56'E.	no
507	Apr. 9, 1929	Diver	Near Badu I., 10°S. 142° 17'E.	yes
510	Dec. 21, 1929	Diver	Thursday I., 10° 35'S. 142° 13'E.	no
511	1929	William Luckie	Garden I., Sydney, 33° 52'S. 151° 12'E.	no
514	?1931	Fisherman	Near Sydney, 33° 52'S. 151° 12'E.	no
515	Jan. 24, 1931	Native	Near Thursday I., 10° 35'S. 142° 13'E.	no
520	Jan. 8, 1922	J. Manning Rowe	Stockton Beach, Newcastle, 32° 58'S. 151° 48'E.	yes
528	May 17, 1934	Anonymous	Tasmania, about 40°S. 145°E.	?
529	1820's	Man nicknamed "Amphibious Jack"	Sweet Water Point, Pittwater, Tasmania, 42° 52'S. 147° 27'E.	yes
532	1934	New Guinea boy	Torres Strait, 10° 20'S. 142°E.	yes
535	Jan. 17, 1935	Small boy	Seaforth R. near Mackay, 18° 17'S. 146° 5'E.	no
536	Jan. 1932	Man and dog	Near? Sydney. 33° 52'S. 151° 12'E.	no
541	Apr. 8, 1936	Ohta, diver	Arlington Reef, near Cairns, 16° 43'S. 146° 5'E.	no
542	Dec. 2, 1936	Soldier attacked in boat	Mordialloc, Victoria. 38°S. 145° 7'E.	yes
549	June 1937	Man	Wallamba R., 32° 13'S. 152° 35'E.	no
551	1937	Torres Strait Islander	? Torres Strait, 10° 20'S. 142°E.	no
552	?1937	Anonymous	Adelaide. 35° 1'S. 138° 25'E.	yes
553	Jan. 1938	E. S. Baker	Cronulla, 34° 4'S. 151° 10'E.	no
556	Jan. 1938	Native	Liverpool R., 12° 2'S. 134° 15'E.	no
558	Dec. 28, 1938	Daniel Graham	North Beach, Bellingen R., 30° 30'S. 152° 2'E.	yes
559	Jan. 13, 1939	Two boys	Clarence R., 29° 25'S. 153° 23'E.	no
560	Oct. 1939	S. Cobbe	Near Restoration Rock, off Portland Roads, 12° 35'S. 143° 24'E.	no
565	Mar. 20, 1940	Smiles Walker	Gerringong. 34° 47'S. 150° 46'E.	no
582	1876	Pearl diver	Between De Grey R. and Port Walcott, about 16°S. 124°E.	no
583	Jan. 5, 1949	Part of a body (hand)	North Fremantle, 32°S. 115° 52'E.	?
584	Mar. 5, 1950	Part of a body (hand)	Safety Bay, 32°S. 115°E.	yes
585	?1791	Native female	New South Wales, about 33°S. 151°E.	yes
587	?1876	Boy	Sydney. 33° 52'S. 151° 12'E.	yes
589	?1880	Albert Buriliss	Milson's Pt., Sydney, 33° 52'S. 151° 12'E.	no

UNPROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	AUSTRALIA	NO. OF PEOPLE	FATAL
592 593 594 595 597 598 599 603 609	Mar. 1887 1887 Dec. 10, 1888 Dec. 1888 1896 1909 ? 1943 Dec. 21, 1947	Body of Mr. Barfoot in shark Cochrane Stephen Carter Mr. Ryland Donald (boy) Anonymous Diver Girl Don Ireland	Dobroyd Head, Watson Bay, Sydney, 33° 32'S. 151° 12'E. Ryde (Sydney), 33° 52'S. 151° 12'E. Iron Cove Bridge, Sydney, 33° 52'S. 151° 12'E. Hawkesbury Bridge, Sydney, 33° 52'S. 151° 12'E. Leichhardt (Sydney), 33° 52'S. 151° 12'E. Woy Woy, 33° S. 151° E. Torres Strait, 10° 20'S. 142° E. Queensland Watson Taylor Lake, 25 miles S. of Port Macquarie, 31° 50'S. 152° 38'E.	1 1 1 1 1 1 1 1 1	yes yes yes yes no no no yes no	
610 611 613 614 616 617 618 619 625 642 643 644 647 653 680 688	Jan. 13, 1949 Jan. 14, 1949 Nov. 12, 1949 Nov. 20, 1949 Feb. 1, 1951 Jan. 3, 1951 Feb. 3, 1951 Nov. 29, 1959 Nov. 22, 1959 Nov. 23, 1958 Dec. 19, 1959 Jan. 16, 1960 Nov. 28, 1959 Apr. 5, 1959 Apr. 3, 1960 Apr. 13, 1960	Man Man on surf-board John W. Smith W. E. Brown Harry Sheen Man Albert Pride Chris Holland Jeffrey Sachse Peter Gerard Spronk Stanley Arthur Mullens Ken William Murray David Beaver Jeff McAuley Kenneth Morris Ivan Chandler	Mona Vale, 33° 41'S. 151° E. Off North Bondi, 34° S. 151° 14'E. Port Phillip Bay, Victoria, 38° S. 145° E. Kurnell, Botany Bay, 34° 1'S. 151° 13'E. Bondi, 34° S. 151° 14'E. Hawkesbury R., 33° 30'S. 151° 15'E. Off Lake Illawarra, 34° 33'S. 150° 53'E. Lorne, Victoria, 38° 34'S. 144° 1'E. Northcliffe, Surfer's Paradise, about 26° S. 153° E. Surfer's Paradise, 27° 58'S. 153° 8'E. Off Wynnum, near Brisbane, 27° 29'S. 153° 8'E. Roseville Bridge, Sydney, 33° 55'S. 151° 10'E. North Burleigh, near Brisbane, about 28° 5'S. 153° 29'E. Thirroul, about 35° 19'S. 151° E. Off Broughton Island, near Port Stephens, 32° 37'S. 152° 20'E. Horseshoe Bay, near Kempsey, 31° 5'S. 152° 50'E.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	no no yes no yes no no no no yes yes no no no no	

689	Apr. 3, 1960	William Black	Canadian Bay, near Mount Eliza, 38° 12'S. 145° 6'E.	1	no
692	Jan. 9, 1874	Thomas Thompson	Darling Harbour, Sydney, 33° 52'S. 151° 12'E.	1	no
693	Dec. 21, 1952	John Holmes	Cape Douglas, 32° 51'S. 137° 49'E.	1	no
694	Oct. 16, 1955	Noel Cross	Five miles off Tully, Queensland, 17° 56'S. 145° 56'E.	1	no
702	Feb. 29, 1960	Malcolm Robertson and Tom Hasler	Ralph Bay, Tasmania, 42° 58'S. 147° 25'E.	2	no
729	Jan. 28, 1906	Anonymous	Georges R., 34° S. 151° 5'E.	1	yes
780	Jan. 1959	Man	Badger Head, Tasmania, 41° 1'S. 146° 7'E.	1	no
791	Dec. 20, 1960	Lester McDougall	College's Crossing, 54 miles above mouth of Brisbane R., 27° 37'S. 152° 41'E.	1	no
793	Nov. 7, 1960	Don Morrissey	Hamelin Bay, 34° 10'S. 115° 0'E.	1	no
804	Nov. 27, 1960	Harry Bicknell	Black's Beach, 9 miles north of Mackay, 21° 1'S. 149° 10'E.	1	no
805	Nov. 27, 1960	Mrs. Despo Snow-Christensen and K. J. Jenson	Bondi Beach, Sydney, 35° 55'S. 151° 10'E.	2	no
831	Unknown	Ted Luck	Cossack Creek, W. Australia, 20° 39'S. 117° 13'E.	1	no
842	Mar. 12, 1961	Brian Rodger	Aldinga Beach, 35° 15'S. 138° 30'E.	2	no
851	Mar. 24, 1951	Fisherman	Sydney, 33° 55'S. 151° 10'E.	1	no
854	Feb. 17, 1961	Mrs. Reg. Fox	Mount Martha Beach, Victoria, 38° 15'S. 145° 4'E.	1	no
855	Mar. 18, 1961	Kenneth Smith	Lady Beach at Warrnambool, 38° 23'S. 142° 3'E.	1	no
857	Mar. 31, 1961	Clyde Buttery	Glenelg Breakwater, S. Australia., 34° 59'S. 138° 31'E.	1	no
858	Apr. 3, 1961	Spearfisherman	Flinders Beach, 55 miles S. of Melbourne, 38° 29'S. 145° 5'E.	1	no
869	Apr. 14, 1961	Keith Davis	10 miles off Nambucca Heads, New South Wales, 30° 38'S. 152° 59'E.	1	no
960	?	Mortakee	Three miles off Thursday Island, 10° 37'S. 142° 10'E.	1	no
970	?	Man	Port Germein, 33° 1'S. 138° E.	1	yes
979	Dec. 18, 1961	John Graydon Andrews	Noosa Heads, Queensland, 26° 25'S. 153° 2'E.	1	yes
987	Dec. 13, 1961	George Stephens	Horn Island near Thursday Island, Torres Strait, 10° 35'S. 142° 14'E.	1	no
994	Dec. 29, 1961	Margaret Hobbs and Martin Steffens	Lambert's Beach, 7 miles from Mackay, 21° 10'S. 149° 10'E.	1	yes
1007	Jan. 13, 1962	Garry Raymond Hiscocks	Lennox Head, Ballina, 28° 50'S. 153° 37'E.	1	no
1023	Feb. 4, 1962	Lance Maloney	Greenmount beach, 28° 10'S. 153° 26'E.	1	no

UNPROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	AUSTRALIA	No. of PEOPLE		FATAL
1027	Feb. 15, 1962	John Hansen	Between Smith's Rock & Moreton Island, 27° 7'S. 153° 25'E.		1	no	
1044	?Feb. 1953	Ron Ware	Australia		1	no	
1045	?1953	Alan Agnew	Australia		1	no	
1046	1953	Rex Gallagher	Shell Harbor, near Sydney, about 33° 55'S. 151° 10'E.		1	no	
1083	Jan. 26, 1910	Alfred Victor Clulow	Newcastle Harbor, 32° 55'S. 151° 48'E.		1	yes	
1084	Nov. 9, 1914	Albert Rebecchi	Manly, 33° 47'S. 151° 17'E.		1	no	
1085	Dec. 8, 1916	Walter C. German	Middle Harbor, Sydney, 33° 52'S. 151° 12'E.		1	yes	
1086	Jan. 19, 1959	Brian Henderson	Brunswick Heads, 28° 9'S. 153° 34'E.		1	no	
1100	Mar. 1955 or 1956	Theo Waits Brown	Woodman's Point, south of Fremantle, 32° 8'S. 115° 44'E.		1	no	
1103	Dec. 31, 1957	Jack Evans	Port Hughes, 100 miles from Adelaide in Spencer Gulf, 35° 8'S. 117° 50'E.		1	no	
1104	Jan. 1958	Ronald Kerwand	5 miles south of Sussex Inlet at mouth of Berara Lake, 35° 12'S. 150° 43'E.		1	no	
1122	Dec. 9, 1962	Geoffrey Martin Corner	Off Normanville Beach, 47 miles south of Adelaide, S. Australia. 35° 27'S. 138° 18'E.		1	yes	
CASE NO.	DATE	NAME OF VICTIM	LOCALITY	INDIAN OCEAN	No. of PEOPLE		FATAL
312	?	Anonymous, man	Tamatave, Madagascar, 18° 10'S. 49° 23'E.		1	yes	
315	Jan. 23, 1952	Bernard Montessier	Pt. Louis, Mauritius, 20° 10'S. 57° 30'E.		1	no	
462	Jan. 10, 1580	Crewman	? Between Portugal and India		1	yes	

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	MEDITERRANEAN	No. of PEOPLE		FATAL
					No. of People	Fatal	
675	Sept. 13, 1958	Sailor of tuna vessel, <i>Daisun-Tenyo-Maru</i>	Nikobar Islands, 7° 12'N. 93° 42'E.		1	yes	
755	1955	Boy	Madagascar, about 18°S. 50°E.		1	no	
1114	Apr. 1954	Jean Foucher-Creteau	S. Red Sea		1	no	
268	Aug. 8, 1899	Arab boy	Port Said, Egypt, 31° 15'N. 32° 18'E.		1	no	
269	Aug. 8, 1899	Arab boy	" " "		1	no	
270	Aug. 8, 1899	Arab boy	" " "		1	no	
275	Sept. 22, 1948	Demetrios Parasakos	Piraeus, Greece, 37° 57'N. 23° 42'E.		1	yes	
276	1950	Swimmer	Piraeus, Athens, Greece, 37° 57'N. 23° 42'E.		1	yes	
277	July 1951	Vanda Pierris and a man	Corfu, Greece, 39° 38'N. 19° 55'E.		1	no	
308	Aug. 4, 1952	Andrea Podesta	Genoa, Italy, 44° 24'N. 8° 56'E.		1	no	
309	July 15, 1954	Anonymous -- refugee	Near Fiume, Italy, 45° 20'N. 14° 27'E.		1	yes	
313	July 21, 1956	Jack Smedley	Valetta, Malta, 35° 54'N. 14° 32'E.		1	yes	
370	Sept. 4, 1934	Agnes Novak	Susak, Yugoslavia, 45° 19'N. 16° 30'E.		1	yes	
839	July 24, 1926	August Casellati	Varazze, Italy, 44° 22'N. 8° 34'E.		1	yes	
884	Dec. 14, 1863	Charles H. Petty	Off Coast of Africa, about 37°N. 25°E.		1	yes	
916	?	Man	Mediterranean		1	yes	
946	Sept. 28, 1961	Sabit Plana	Opatija, Yugoslavia, Adriatic Sea, 45° 20'N. 14° 18'E.		1	yes	
974	Aug. 30, 1934	Zorca Prince	Off Reutore, Yugoslavia, near Fiume, about 45°N. 14°E.		1	yes	
998	1926	Boy	Bay of Monaco, 43° 40'N. 7° 30'E.		1	yes	
1062	Sept. 2, 1962	Maurizio Sarra	Tyrrhenian Sea, 3 miles south of S. Felice Cicero,		1	yes	
1107	Sept. 1956	Goffredo Lombardo	(Terracina), Approx. 41° 17'N. 13° 15'E. Tyrrenian Sea, 1½ miles south of Felice Cicero, 41° 15'N. 13° 10'E.		1	no	

UNPROVOKED SHARK ATTACKS (Continued)

Cast No.	Date	Name of Victim	Locality		No. of People Fatal
			North America, East Coast		
200	July 1907	Hernandez	Coles Island, Charleston, South Carolina, 32° 50' N. 60° W.		1 no
201	July 2, 1916	Charles E. Vansart	Beach Haven, New Jersey, 39° 33' N. 74° 15' W.		1 yes
202	July 12, 1916	Lester Silwell	Matawan Creek, New Jersey, 40° 25' N. 75° 15' W.		1 yes
203	July 12, 1916	Stanley Fisher	" " "		1 yes
204	July 12, 1916	John Dunn	" " "		1 yes
205	June 3, 1917	W. J. Pierpont, Jr.	Calibogue Sound, Savannah, Georgia, 32° N. 81° W.		1 no
206	Sept. 21, 1917	Daniel Thompson	Sea Bright, New Jersey, 40° 22' N. 74° W.		1 no
207	May 29, 1919	W. E. Davis	James Island Sound, South Carolina, 32° 46' N. 80° W.		1 no
208	July 14, 1920	Thomas McCann	Freeport, Long Island, New York, 40° 38' N. 73° 40' W.		1 yes
209	June 17, 1923	Dorothy MacLatchie	Tampa Bay, near St. Petersburg, Florida, 27° 46' N. 82° 30' W.		1 yes
210	June 31, 1924	Lewis Kornahrens	Folly Island, near Charleston, 32° 40' N. 79° 58' W.		1 no
211	Aug. 2, 1925	Mrs. Walter H. Kahrs	Folly Island, near Charleston, 32° 40' N. 79° 58' W.		1 no
212	July 12, 1930	William Harris	Stuart, Florida, 27° 11' N. 80° 15' W.		1 no
213	Sept. 21, 1931	Gertitude Holaday	Palm Beach, Florida, 26° 40' N. 80° 3' W.		1 no
214	Aug. 6, 1931	Soldier	Sandy Hook, New Jersey, 40° 28' N. 74° 1' W.		1 no
215	June 16, 1933	Emma G. Megginson	Folly Island, near Charleston, 32° 40' N. 79° 58' W.		1 no
216	June 21, 1933	Dayton Basic	Morris Island, Charleston Harbor, 32° 40' N. 79° 58' W.		1 no
217	Aug. 23, 1933	Kenneth Layton	Pawley's Island, 75 miles north of Charleston, 33° 25' N. 79° 10' W.		1 no
218	July 25, 1936	Joseph Troy, Jr.	Hollywood Beach, Buzzard's Bay, Massachusetts, 41° 38' N. 70° 45' W.		1 yes
219	July 13, 1940	William Tanner & Harvey Haley	Folly Beach, South Carolina, 32° 40' N. 79° 58' W.	2	no
220	July 14, 1941	Howard E. Sweatmont	Sullivan Island, Charleston Harbor, 32° 55' N. 79° 58' W.	1	no
221	June 29, 1941	Hayward Green	Englewood Beach, Florida, 26° 58' N. 82° 21' W.	1	no
222	May 31, 1944	Mary Ann Shands	Mayport, Atlantic Beach, Florida, 30° 13' N. 81° 23' W.	1	no
223	Aug. 4, 1947	Ralph Reginald Rives, Jr.	St. Augustine, Florida, 29° 54' N. 81° 19' W.	1	yes

		Ted Roach	
230	July 25, 1949		
231	June 26, 1950	Joseph Salengo	Okeetee River, South Carolina, (probably head of Collection R.) about $32^{\circ} 20' N.$ $80^{\circ} 55' W.$
232	July 1950	Warren Rathgen	New York, $40^{\circ} 43' N.$ $73^{\circ} 50' W.$
235	1952	Pan American pilot	Rock Harbor, Key Largo, Florida, $25^{\circ} 11' N.$ $80^{\circ} 21' W.$
237	July 1953	Boy	Key West, Florida, $24^{\circ} 34' N.$ $81^{\circ} 48' W.$
238	July 15, 1953	Mrs. D. F. Gunn	Galveston, Texas, $29^{\circ} 17' N.$ $94^{\circ} 48' W.$
241	1955	Anonymous	Juno Beach, Miami, Florida, $25^{\circ} 48' N.$ $80^{\circ} 7' W.$
245	July 1956	Eric Rawle	North of Vero Beach, Florida, $27^{\circ} 39' N.$ $80^{\circ} 24' W.$
247	Feb. 5, 1957	David Carson	Isle of Palms, Charleston, $32^{\circ} 50' N.$ $79^{\circ} 58' W.$
248	Apr. 22, 1957	Michael Carpenter	Fort Pierce, Florida, $27^{\circ} 28' N.$ $80^{\circ} 20' W.$
250	July 15, 1957	Robert Wade	Ormond Beach, Florida, $29^{\circ} 26' N.$ $81^{\circ} 3' W.$
252	July 23, 1958	Douglas Lawton	Salter Path, North Carolina, $34^{\circ} 40' N.$ $77^{\circ} 18' W.$
253	?	Horton Chase	Longboat Key, Sarasota, Florida, $27^{\circ} 20' N.$ $82^{\circ} 32' W.$
316	June 7, 1929	Sailor	Palm Beach, Florida, $26^{\circ} 42' N.$ $80^{\circ} 3' W.$
317	Apr. 26, 1949	Man	Tampico, Mexico, $22^{\circ} 18' N.$ $97^{\circ} 52' W.$
330	Apr. 1944	Bathers	Miramar Beach, Tampico, Mexico, $22^{\circ} 18' N.$ $97^{\circ} 52' W.$
374	May 3, 1959	Ernest Grover	Lake Nicaragua, Nicaragua, $12^{\circ} N.$ $85^{\circ} W.$
377	Nov. 8, 1911	Jules Antoine	Off Panama City, Florida, $30^{\circ} N.$ $86^{\circ} W.$
380	Aug. 35, 1926	Charles A. Burke	Pensacola Bay, Florida, $30^{\circ} 26' N.$ $87^{\circ} 12' W.$
381	Jan. 18, 1956	Lester Burton	Seaside, New Jersey, $39^{\circ} 55' N.$ $74^{\circ} 5' W.$
384	July 13, 1916	Thomas Richards	San Juan River, Costa Rica, $11^{\circ} N.$ $84^{\circ} 45' W.$
390	Oct. 1865	Peter Johnson	Sheepshead Bay, Brooklyn, New York, $40^{\circ} 36' N.$ $71^{\circ} 59' W.$
393	Mar. 29, 1959	James McKee	Greenport Sound, Long Island, New York, $41^{\circ} 6' N.$ $72^{\circ} 21' W.$
395	Sept. 1935	Jere W. Fountain	Vaca Cut Channel and Bridge near Marathon, Florida. $24^{\circ} 43' N.$ $81^{\circ} 6' W.$
			Brown's Inlet on New River, Onslow County, North Carolina. $34^{\circ} 38' N.$ $77^{\circ} 12' W.$
			Off Panama in Caribbean, about $9^{\circ} N.$ $80^{\circ} W.$
			Springlake, New Jersey, $40^{\circ} 9' N.$ $74^{\circ} 2' W.$
			Pensacola, Florida, $30^{\circ} 26' N.$ $87^{\circ} 12' W.$
			Swampscott, Massachusetts, $42^{\circ} 28' N.$ $70^{\circ} 55' W.$
			Atlantic City, New Jersey, $39^{\circ} 20' N.$ $74^{\circ} 25' W.$

UNPROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	NORTH AMERICA, EAST COAST	NO. OF PEOPLE	FATAL
422	Sept. 28, 1911	A ship's pilot	Pensacola, Florida, 30° 26'N. 87° 12'W.		-	yes
423	Sept. 17, 1911	H. C. Rood	Pablo Beach, Florida, 30° 15'N. 81° 20'W.	-	1	no
425	Mar. 31, 1907	Bellon Larkin	Off Punta Gorda, Florida, 26° 56'N. 82° 1'W.	-	1	yes
426	Dec 16, 1908	Col. Harry J. Earle	Off Quintana Roo, Mexico, about 19°N. 87°W.	-	1	yes
427	Sept. 23, 1911	John Blomquist	Galveston Channel, Texas, 29° 20'N. 94° 45'W.	-	1	yes
431	June 26, 1938	Eric N. Cockerill	Sanibel Island, Florida, 26° 26'N. 82° 10'W.	-	1	no
432	June 24, 1938	Frank A. Mahala	Siesta Key near Sarasota, Florida, 27° 15'N. 82° 35'W.	-	1	no
433	July 1958	John Hamlin	Siesta Key, Sarasota, 27° 15'N. 82° 35'W.	-	1	no
438	Apr. 6, 1919	Fisherman	Florida Capes (southern tip of Florida), about 25°N. 82°W.	-	1	yes
439	Aug. 15, 1939	Lt. James C. Neal	Off Panama City, Florida, 30° 10'N. 86°W.	-	1	yes
457	Aug. 10, 1939	Miss Elizabeth Fields	Savannah Beach, Savannah, Georgia, 32° 4'N. 81° 7'W.	-	1	no
509	Sept. 26, 1959	Robert Walker	Off Port Everglades, Florida, 25° 59'N. 80° 8'W.	-	1	no
622	1919 or 1920	Mrs. W. Avery	Near Panama City, Florida, 30° 10'N. 85° 40'W.	-	1	no
623	Before 1921	James Kelley	Gadsden Point, Tampa Bay, Florida, 27° 46'N. 82° 30'W.	-	1	no
624	Oct. 26, 1943	Clyde Kelly Ormond, Jr.	Baker's Haulover, Miami Beach, Florida, 25° 47'N. 80° 7'W.	-	1	yes
628	1957	Anonymous	Fort Pierce, Florida, 27° 28'N. 80° 20'W.	-	1	no
633	July 1958	Two men	Near Sarasota, Florida, 27° 15'N. 82° 35'W.	-	2	no
634	July 10, 1958	Angel B. Escartín	Near Key West, Florida, 24° 31'N. 81° 48'W.	-	1	yes
635	Oct. 5, 1958	Lyton Evans	Baker's Haulover, Miami Beach, 25° 47'N. 80° 7'W.	-	1	no
678	Mar. 31, 1960	Robert B. Winkler	Off Boca Raton, Florida, 26° 22'N. 80° 5'W.	-	1	no
721	"	Carl Holm	Florida	-	1	no
742	Feb. '26, 1944	Man	20 miles off Venice, Florida, in Gulf of Mexico, 27° 10'N. 82° 5'W.	-	1	yes
743	June 26, 1950	Joseph Falango	Rockaway Park, New York, 40° 35'N. 73° 55'W.	-	1	no
748	Aug. 30, 1960	Richard P. Chung	Ocean City, New Jersey, 39° 16'N. 74° 35'W.	-	1	no
751	1935	Captain of fish trawler	50 miles off New Jersey coast, 39° 36'N. 79° 30'W.	-	1	1

				Between Biloxi and Mississippi City, Mississippi,
				30° 23'N. 89°W.
1	no			Sea Girt, New Jersey, 40° 7'N. 74° 2'W.
1	no			Bridgeport, Connecticut, 42° 12'N. 73° 12'W.
1	no			Mispillion Light, Delaware, 38° 57'N. 75° 19'W.
1	no			Sea Spray at Palm Beach, Florida, 26° 45'N. 80° 1'W.
1	no			Mouth Rio Dudio, 50 miles west of Colon, Panama,
1	no			Canal Zone, 9°N. 80° 45'W.
1	no			Beach 300 yards west of mouth, Chagres River, Canal Zone.
1	no			9° 14'N. 80° 5'W.
1	no			Laguna Beach, Florida, 30° 15'N. 85° 50'W.
1	yes			500 yards from Fowey Rock Light, 9 miles E. of Key Biscayne, Florida, 25° 35'N. 80° 5'W.
1	yes			Trout River, Panama Park, Florida, 30° 20'N. 81° 41'W.
1	no			Jacksonville Beach, Florida, 30° 20'N. 81° 40'W.
1	no			Jekyll Island, Georgia, 31° 3'N. 81° 25'W.
1	yes			Mosquito Inlet (Ponce Park), Florida, 29°N. 80° 55'W.
1	yes			Between Lake Worth and Biscayne Bay, near Hillsboro, 26° 36'N. 80° 4'W.
1	no			Indian Key, Florida, 24° 40'N. 80° 35'W.
1	no			"Indian River Inlet" (Fort Pierce Inlet), Florida, 27° 30'N. 80° 25'W.
1	yes			Charleston Harbor, South Carolina, 32° 48'N. 79° 58'W.
1	?			"Southern Wharf," ? South Carolina
1	yes			Mount Pleasant, South Carolina, 32° 48'N. 79° 58'W.
1	yes			Off the Battery, near Fernandina Bar, Florida, 30° 40'N. 81° 26'W.
1	yes			Bull's Bay, near Charleston, South Carolina, 33°N. 79° 32'W.
1	no			South Carolina
1	yes			South Carolina
1	no			Creek, near Jacksonville, Florida, 30° 20'N. 81° 40'W.
1	Florida			

UNPROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	NORTH AMERICA, EAST COAST	NO. OF PEOPLE	FATAL
928 ?1915	Apr. 16, 1961 July 5, 1935	Rolfe Ericson Man Valentin Alonso	Fowey Rock Lighthouse, near Miami, 25° 35'N. 80° 25'W. Soldier Key, Florida, 25° 30'N. 80° 10'W. Culebra, Panama, 9° 3'N. 79° 40'W.	1 1 1	no yes yes	
956 972	Apr. 13, 1949	Man	Miramar Beach, near Tampico, Mexico, about 22° 18'N. 97° 52'W.	1	no	
975 985 999 1005 1024 1038	Apr. 10, 1933 June 20, 1934 July 12, 1913 Sept. 21, 1913 Aug. 16, 1961 June 3, 1962	Thomas N. Martin Richard Clark Best, Jr. Soldier Man William Lee Bailey Paul Dammann	Miami Beach, Florida, 24° 45'N. 80° 15'W. Melbourne, Florida, 24° 4'N. 80° 38'W. Charleston, South Carolina, 32° 48'N. 79° 58'W. West Palm Beach, Florida, 26° 42'N. 80° 30'W. Pawley's Island, South Carolina, 33° 25'N. 79° 10'W. Riviera Beach shore near Palm Beach Inlet, Florida, 26° 46'N. 80° 6'W.	1 1 1 1 1 1	yes yes no no ?no	
1041 1047	May 29, 1962 June 10, 1962	Boy Frank Glenn	Off Jupiter, Florida, 26° 57'N. 80° 8'W. Off Hilton Head Island, South Carolina, 32° 12'N. 80° 45'W.	1 1	no no	
1051 1052 1055 1056 1057 1058	July 7, 1962 July 10, 1962 June 17, 1962 July 29, 1962 Aug. 12, 1962 Aug. 19, 1962	Gary Duncan Leonard Harrison Hancock Barry Byran Reed Robert Stein Michael Roman Hans Fix	Off Jekyll Island, Georgia, 31° 3'N. 81° 25'W. Jekyll Island, Georgia, 31° 3'N. 81° 25'W. New Smyrna Beach, Florida, 29° 1'N. 80° 56'W. Hilton Head, South Carolina, 32° 12'N. 80° 45'W. Manasquan, New Jersey, 40° 7'N. 74° 2'W. Padre Island, near Port Isabel, Texas, 26° 7'N. 97° 9'W.	1 1 1 1 1 1	no no no no no yes	

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	NORTH AMERICA, WEST COAST	NO. OF PEOPLE	FATAL
215	July 8, 1926	Norman Pieotto and dog	San Francisco Bay, California, 37° 48'N. 122° 20'W.	1	no	
233	Oct. 8, 1950	R. Campbell	Imperial Beach, San Diego, California, 32° 41'N. 117° 10'W.	1	no	
234	May 27, 1952	Man	Coronado, San Diego, California, 32° 41'N. 117° 10'W.	1	no	
236	Dec. 7, 1952	Barry Wilson	Monterey Bay, California, 36° 38'N. 121° 55'W.	1	yes	
239	Sept. 21, 1954	Clyde Leeper	La Jolla, California, 32° 50'N. 117° 16'W.	1	no	
240	Feb. 6, 1955	James F. Jacobs	Monterey Bay, California, 36° 45'N. 121° 55'W.	1	no	
242	May 8, 1955	Robert C. Yeargin	Malibu Beach, California, 34° 5'N. 118° 40'W.	1	no	
243	Sept. 4, 1955	Eric Vaughters	Venice Beach, California, 33° 59'N. 118° 28'W.	1	no	
244	Aug. 30, 1955	Dale Strand and 2 life guards	Santa Monica, California, 34°N. 118° 25'W.	3	no	
246*	Aug. 14, 1956	Douglas Clarke	Pismo Beach, California, 35° 10'N. 120° 37'W.	1	no	
249	Apr. 28, 1957	Peter Savino	Morro Bay, California, 35° 24'N. 120° 50'W.	1	yes	
261	May 26, 1938	Fisherman	Costa Rica, about 10°N. 84° 30'W.	1	yes	
318	Aug. 1, 1953	Ema Aquilera Prada	Manzanillo, Mexico, 19°N. 104° 20'W.	1	yes	
319	1954	Rosario Bianci	Baja, California, about 24°N. 112°W.	1	yes	
332	Nov. 4, 1929	Abraham Moreno	Taboga Island, Gulf of Panama, 8° 47'N. 79° 33'W.	1	yes	
333	Sept. 1940	Roberto Menacho	Otoque Island, Panama, 8° 36'N. 79° 39'W.	1	yes	
334	1942	Man	Bella Vista Beach, Panama City, Panama,	1	yes	
			8° 57'N. 79° 30'W.			
335	Sept. 23, 1943	Sailor	Rey Island, Gulf, Panama, 8° 20'N. 78° 50'W.	1	yes	
336	June 30, 1953	Jose Gonzalves	60 miles at sea, Gulf of Panama, about 8°N. 79°W.	1	no	
363	Aug. 10, 1950	R. E. Boltine	50 miles off Port La Libertad, El Salvador, about	1	no	
			13°N. 88° 30'W.			
372	May 7, 1959	Albert Kogler	Bakers Beach, Golden Gate, San Francisco,	1	yes	
			37° 40'N. 122° 30'W.			
376	June 14, 1959	Robert L. Pamperin	Off Alligator Head, La Jolla, California,	1	yes	
			32° 50'N. 117° 17'W.			

* Although both Coppleson (1958) and Hutton (1959) published this locality as Florida, it is California. There is no Pismo Beach in Florida, and we have verified the attack at Pismo Beach, California.

UNPROVOKED SHARK ATTACKS (Continued)

CAST NO.	DATE	NAME OF VICTIM	LOCALITY	NORTH AMERICA, WEST COAST	NO. OF PEOPLE	FATAL
386	June 1907	Frank Fonda	Salina Cruz, Oaxaca, Mexico.	16° 11'N. 95° 12'W.	1	no
397	Apr. 1947	Charles F. L. Kaufmann	Off Central America in Pacific, about 8°N. 79°W.		1	no
409	1883-1889	Jules Patterson	Panama Bay, about 8°N. 79°W.		1	yes
434	July 28, 1959	Vern S. Fleet	Boomer Beach, La Jolla, California, 32° 50'N. 117° 17'W.	1	no	
435	?	Girl	Capistrano, California, 33° 42'N. 117° 40'W.	1	no	
451	June 14, 1959	Francisco R. Topele	San Pedro Nolasco I. near Guaymas, Mexico.	1	yes	
554	Oct. 4, 1959	James Hay	27° 59'N. 110° 54'W.			
620	Nov. 10, 1959	Duffie Fryling	Bodega Bay, California, 38° 19'N. 123° 5'W.	1	no	
682	Sept. 1959	French woman	Off Paradise Cove, Malibu, California, 34° 5'N. 118° 30'W.	1	no	
683	Apr. 24, 1960	Frank I. Gilbert	Acapulco, Mexico, 16° 51'N. 99° 56'W.	1	yes	
686	May 19, 1960	Suzanne Theriot	Bird Rock off Tomales Point, California, 38° 15'N. 123°W.	1	no	
705	Nov. 24, 1924	Man	Hidden Beach, Santa Cruz, California, 36° 58'N. 122° 3'W.	1	no	
722	1952-3	U.S. Navy diver	2 to 3 miles off Taboguilla Island, Panama, in Pacific Ocean, 8° 48'N. 79° 32'W.	1	no	
845	Oct. 12, 1958	John Allman	Imperial Beach, California, 32° 33'N. 117° 10'W.	1	no	
849	Sept. 3, 1955	Man	Coronado, near San Diego, California, 32° 40'N. 117° 11'W.	1	no	
917	Aug. 20, 1961	David Vogensen	Venice Beach, California, 33° 59'N. 118° 28'W.	1	no	
967	July 27, 1935	Dr. Alfred L. Wilkes and Barney Wilkes	Salmon Creek Beach, Bodega Bay, California, 38° 19'N. 123° 5'W.	1	no	
1001	Jan. 14, 1962	Floyd Pair, Jr.	Santa Barbara Channel, California, about 33° 30'N. 118° 30'W.	1	yes	
1030	Feb. 10, 1955	John Adams	Off Farallon Islands, California, 37° 45'N. 122° 57'W.	1	no	
1039	June 4, 1962	Norval J. (Tom) Green	Trinidad Bay, Humboldt County, California, 41° 4'N. 124° 8'W.	1	no	
1059	Aug. 29, 1962	Knox Harris	Bottom of 12-ft. tank at Steinhart Aquarium, San Francisco, California	1	no	
1115	Nov. 11, 1962	Leroy French	Point Loma, California, about 32° 39'N. 117° 14'W.	1	no	
			Farallon Islands, 37°N. 57°W	1	no	

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	PACIFIC OCEAN	NO. OF PEOPLE	FATAL
267	?	Man Fijian boy	Natuna Island, East Indies, about 3°N. 109°E. Suva Harbor, Fiji, 18° 8'S. 178° 25'E.		1	yes
271	1925	Asena, a girl	Nabukeru Yasawa Is., Fiji, 16° 48'S. 178°E.		1	no
272	June 20, 1932	Bale, a Fijian	Suva Harbor, Fiji, 18° 8'S. 178° 25'E.		1	yes
273	Feb. 24, 1956	Fijian girl	Fiji, 18° 8'S. 178° 25'E.		1	no
274	?	Two women	Honolulu, Hawaii, 20° 55'N. 156° 20'W.		1	no
280	June 2, 1886				1	no
281	Aug. 8, 1902	Hawaiian boy	Kalibb, Hawaii, 21° 19'N. 157° 50'W.		1	yes
282	Oct. 8, 1907	Fisherman	Maui, Hawaii, about 20° 45'N. 156° 30'W.		1	no
283	Sept. 28, 1922	Man	Molokai, Hawaii, about 21°N. 157°W.		1	no
284	Apr. 7, 1926	Mrs. Leonard Carlsmith	Hilo Bay, Hilo, Hawaii, 19° 42'N. 155° 4'W.		1	no
285	June 14, 1931	Man	Pearl Harbor, Hawaii, 21° 22'N. 158°W.		1	no
287	June 27, 1947	Fisherman	Waianae, Hawaii, 21° 27'N. 158° 15'W.		1	no
288	Sept. 19, 1948	Fisherman	Makapuu Point, Hawaii, 21° 18'N. 157° 40'W.		1	no
289	1954	Severino	Molokai, Hawaii, 21°N. 157°W.		1	no
291	July 4, 1953	David Crick	Lehua I., Hawaii, 22° 1'N. 160° 6'W.		1	no
292	Apr. 15, 1953	Leonard Gault	Oahu, Hawaii, about 21°N. 158°W.		1	yes
293	July 26, 1953	Harold Sozua	Maile Beach, Oahu, Hawaii, 21° 26'N. 158° 11'W.		1	yes
294	Sept. 20, 1955	Philip C. Diez	Molokai, 21°N. 157°W.		1	no
320	?1950	Trochus fisherman	Mangilia Reef, near Touho (Tuhoo), New Caledonia, (East Coast) 21° 46'S. 165° 14'E.		1	no
321	1950	Spearfisherman	Voh, New Caledonia (West Coast), 21°S. 164°E.		1	no
322	Jan. 22, 1850	Soldier	Wellington Harbor, New Zealand, 41° 20'S. 174° 46'E.		1	yes

UNPROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	PACIFIC OCEAN	NO. OF PEOPLE	FATAL
323	?1868	Cook	Brickfield Bay, Auckland Harbor, New Zealand. 36° 50'S. 174° 41'E.		1	no
324	1880	Man	Campbell Point, Auckland Harbor, New Zealand, 36° 50'S. 174° 41'E.		1	no
325	Dec. 20, 1896	Bright Cooper	Napier, New Zealand, 39° 30'N. 176° 53'E.		1	yes
326	1920	Girl	Stanley Bay, Auckland Harbor, New Zealand, 36° 50'S. 174° 41'E.		1	no
327	1928	Mrs. J. Foot and another woman	Miranda, Firth of Thames, near Auckland, New Zealand, 36° 50'S. 174° 41'E.		2	no
328	Feb. 1927	Man	Menzies Bay, Banks Peninsula, near Christchurch, New Zealand, 43° 45'S. 173°E.		1	no
331	Jan. 6, 1955	Kosuo Mizokawa	Pago Pago, Samoa, 14° 17'S. 170° 40'W.		1	yes
340	?	Native boy	Singour, New Guinea, about 8°S. 146°E.		1	no
341	July or Aug. 1956	Anonymous	Fisherman's Island, Papua, about 8°S. 146°E.		1	no
342	Aug. 1956	Tsira, native	Yule Island, Papua, 8° 50'S. 146° 32'E.		1	no
343	Aug. 20, 1956	Fisherman	Paga Pt., Papua, about 8°S. 146°E.		1	no
344	Aug. 25, 1956	Kara Renagi	Fisherman's Island, Papua, about 8°S. 146°E.		1	yes
345	Dec. 1956	Titus Tiso	Samarai, Papua, 10° 36'S. 150° 39'E.		1	yes
346	Dec. 26, 1956	Patterson (John) Nikumiku	Samarai, South end of, 10° 36'S. 150° 39'E.		1	yes
347	June 24, 1901	S. McK. (U.S. Navy) and native	Iloilo, Panay Island, Philippines, 10° 41'N. 122° 33'E.		1	no
348	June 8, 1902	Apy	Mouth Cumalarang R., near Port Isabela, Philippines, 6° 44'N. 121° 59'E.		1	yes
349	Nov. 2, 1904	Sailor	Olongapo, Philippines, 14° 52'N. 120° 16'E.		1	no
350	Feb. 9, 1907	J. L. Dunlap	Manila Bay?, Philippines, 14° 30'N. 120° 50'E.		1	no
351	Oct 1901	Dahkus	Near Port Isabela, Baslian Group, Philippines, 6° 44'N 121° 59'E.		1	no

352	1910	Lt. James H. Stewart	Polinao Pt., Manila, Philippines, 14° 30'N. 120° 50'E.	1	no
353	May 31, 1917	E. E.	Canacao Bay, Philippines, 14° 29'N. 120° 55'E.	1	no
354	Sept. 27, 1953	Bartolome Mangutbal	Manila, 14° 30'N. 120° 50'E.	1	yes
355	Apr. 1957	Sonieva and Omi	Kieta, Solomon Islands, 6° 12'S. 155° 40'E.	2	no
368	?	Man	Wake Island, 19° 16'N. 166° 37'E.	1	no
369	Feb. 2, 1959	Donald Battye	Trench's Beach, Honiara, Solomon Islands, 9° 30'S. 160°E.	1	yes
378	Dec. 13, 1958	William Weaver	Oahu, off Lanikai, East Coast, Hawaii, 21° 25'N. 157° 44'W.	1	yes
405	Jan. 27, 1959	Theodore C. Swienty	Galapagos Islands, 1°S. 91°W.	1	no
408	1904	Man	Honolulu, Hawaii, 21° 19'N. 157° 50'W.	1	yes
410	Apr. 1910	Martin Lund	Pearl Harbor, Hawaii, 21° 22'N. 158°W.	1	no
424	1904	Lt. Edwin R. Hearn	Tayabas, Philippines, 13° 50'N. 121° 40'E.	1	no
444	Mar. 8, 1959	Leopoldo Sanchez	Davao City, Mindanao, Philippines, 7° 5'N. 125° 38'E.	1	yes
450	June 6, 1909	Master of the <i>Errol</i>	Middleton Reef, 29° 30'S. 159° 12'E.	1	yes
600	1949	Native	Kerema, Papua, 7° 58'S. 145° 45'E.	1	no
638	Sept. 30, 1959	Francisco Dagunot	Luang Dulag, Leyte I., Philippines, 10° 40'N. 125°E.	1	no
645	Oct. 2, 1959	Fijian	Levuka, Fiji, 17° 42'S. 178° 50'E.	1	yes
646	Dec. 26, 1959	Manama Mari	Kaparoka, Rigo Subdistrict, Papua, 9° 50'S. 147° 31'E.	1	yes
652	Feb. 27, 1960	John Benjamin	Between Keowakapu and Makena, Maui, Hawaii.	1	no
655	Sept. 2, 1957	Walter L. Huges	20° 42'N. 156° 27'W.	1	no
656	Oct. 1942	H. R. Kabat	Eniwetok Atoll Lagoon, 11° 30'N. 162° 15'E.	1	no
657	Feb. 27, 1960	Laurie Ross	Near Savo Islands, 9° 10'S. 159° 50'E.	1	no
658	Jan. 30, 1960	Upad boy	Mangawhai, near Wellsford, New Zealand.	1	no
669	Feb. 19, 1960	Doas Hehuni	36° 8'S. 174° 36'E.	1	no
671	Aug. 11, 1959	Akira Tsuchiya	Taludig, near Madang, Murrinass R., New Guinea.	1	no
672	July 25, 1959	Ishida Hideo	5° 13'S. 145° 50'E.	1	yes
673	Aug. 8, 1955	Sailor on tuna vessel	Tupiselei, Papua, 9° 34'S. 147° 19'E.	1	yes
676	Dec. 12, 1958	Sailor on tuna vessel, No. 12	Isoneura Beach, Wakayama City, Japan.	1	yes
677	July 21, 1950	<i>Taiyo Maru</i>	Ushimado, Okayama, Japan, 34° 40'N. 133° 54'E.	1	yes
		Man	Pago Pago Bay, Samoa Islands, 14° 16'S. 170° 43'W.	1	yes
			Samoa Islands, 14° 16'S. 170° 43'W.	1	yes
			Ariakeno Bay, Siquia, Japan, 33° 15'N. 130° 18'E.	1	yes

UNPROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	PACIFIC OCEAN	NO. OF PEOPLE	FATAL
684	1943	U.S. soldier	Guadalcanal, Solomon Islands, 9° 30'S. 160° E.		-	no
691	Mar. 28, 1960	Enrique Metao Metao	Guam, 13° 30'N. 144° 40'E.		-	no
706	July 25, 1954	Man	Galapagos Islands, 0°N. 90°W.		-	no
727	Aug. 30, 1955	Otarmatsu Yoshi	Small island 150 miles south of Tokyo, 33° 53'N. 139° 35'E.		-	yes
731	1907	Japanese fisherman	Pepekeo, Hawaii, 19° 50'N. 155° 6'W.		-	yes
732	Jan. 8, 1908	Japanese fisherman	Mana, Kauai Island, Hawaii, 22° 2'N. 159° 45'W.		-	yes
733	1910	Fisherman	Hilo, Hawaii, 19° 42'N. 155° 4'W.		-	yes
734	Mar. 1914	Japanese	Honolulu, Hawaii, 19° 51'N. 155° 6'W.		-	yes
735	Oct. 4, 1939	Man	Makapu, Hawaii, 21° 18'N. 157° 49'W.		-	no
738	Oct. 1944	Navy Ensign	Off Cape Engaño, Philippines, 18° 35'N. 122° 13'E.		-	no
744	July 27, 1960	John Klaso	Off Taupota, Milne Bay, Papua, 10° 20'S. 150° 23'E.		-	no
762	"	Young woman	Raroia Atoll, Tuamotu Island, 16°S. 142° 25'W.		-	no
768	Apr. 1960	Fijian woman	Off Mbua Coast, Fiji, 17° 19'S. 178° 11'E.		-	yes
769	June 5, 1960	Leonardo Mendoza	Corregidor Island, Philippines, 14° 22'N. 120° 35'E.		-	yes
806	?1911	Man	Manukau Harbor, 6 miles south of Auckland, New Zealand, 37° 3'S. 174° 31'E.		-	yes
808	Aug. 31, 1921	Marcellus T. Abernathy	Manila Bay, Philippines, 14° 36'N. 120° 50'E.		-	yes
811	1939	Man	Caivakala, Aroma Passage, New Guinea, 10° 10'S. 148°E.		-	yes
817	Unknown	Elison Sevo	Solomon Islands, 10°S. 160°E.		-	no
823	Autumn 1943	Man	Midway Island, 28° 13'N. 177° 23'W.		-	no
824	Autumn 1943	Man	Midway Island, 28° 13'N. 177° 23'W		-	no
825	1941-1945	Man	Munda Lagoon, 8° 21'S. 157° 13'E.		-	no
841	June 27, 1947	Valentin Limatoc	Makaha Bay, Western Oahu, Hawaii, 21° 42'N. 158°W.		-	no
843	Mar. 9, 1961	James Stewart	Wake Island, 19° 16'N. 166° 37'E.		-	no
856	Apr. 1960	N. and Dona J. Balandok	Batan, Philippines, 20° 25'N. 121° 58'E.	2	yes	
888	?1880	Boy	Guadalcanal, Solomon Islands, 9° 30'S. 160°E.	1	no	
919	Aug. 2, 1961	Kazuhiho Kato	Pearl Harbor Channel, Hawaii, 21° 22'N. 158°W.	1	no	

922	May 1955	Sindlin		1	no
924	1913 or 1914	Mr. Grant	2° 22'S. 147° 31'E.	1	no
925	1913 or 1914	Man	Oamaru, southeast coast, New Zealand, 45° 6'S. 170° 58'E.	1	yes
926	Mar. 1961	Albert Bailey	Moeraki, New Zealand, 45° 22'S. 170° 52'E.	1	no
930	Dec. 3, 1952	Gerbacio Solano	Wotua Beach, Fiji Island, 19° S. 178° E.	1	yes
932	Oct. 27, 1961	Fisherman	Oahu Island, Hawaii, 21° 19'N. 157° 51'W.	1	no
935	Sept. 1, 1960	F. Mautin	Manila Bay, Philippines, 14° 23'N. 120° 35'E.	1	no
954	Sept. 2, 1960	E. S. Hobson	Parry Island, Eniwetok Atoll, 11° N. 162° E.	1	no
955	Oct. 1960	Raymond F. McAllister	Sand Island, Eniwetok Atoll, 11° N. 162° E.	1	no
958	1930	Boy	Johnston Island, 16° 45'N. 169° 32'W.	1	yes
961	Nov. 20, 1954	James L. Oetzel	Niua Fo'ou I., Tonga Islands, 15° 30'S. 176° W.	1	no
1002	Jan. 11, 1962	Mrs. Beryl Grant	Wilkes Islet Lagoon, Wake Island, 19° 16'N. 166° 37'E.	1	no
1015	Feb. 26, 1962	Mr. Loloi, a constable	Fairdown Beach, 5 miles north of Westport, New Zealand,	1	no
1022	June 1951	Don M. Clark	41° 44'S. 171° 43'E.	1	yes
1029	Jan. 1, 1962	Stanley Caberto	North coast of Guadalcanal, Solomon Islands, about	1	no
1031	Unknown	Dusty Rhodes	9° 20'S. 160° 10'E.	1	no
1036	Aug. 3, 1952	Shigechi Kawamura	Off Hikueru Atoll, Tuamotu Islands, about	1	no
1037	Unknown	Val Valentine	17° 40'S. 142° 55'W.	1	no
1043	Jan.-June 1962	Nine fishermen and one woman	Roi-namur Island, Kwajalein Atoll, Marshall Islands,	1	no
1081		Norman McEwan	9° 15'N. 167° 30'E.	1	no
1088	Jan. 27, 1962	Woman	Canton Island, Phoenix Islands, 2° 50'S. 171° 40'W.	1	yes
1089	Oct. 23, 1957	Matthew Keia	Between Ala Moana Channel and Kewalo Basin, Hawaii,	1	yes
1090	Oct. 24, 1957	Renagi Loi	21° 18'N. 157° 51'W	1	yes
1091	1941	Ramien	Port Lock, Hawaii, 21° 17'N. 157° 43'W.	10	yes
1092	Jan. 27, 1954	Man	Off Larantuka and Waewerang, E. Flores, Indonesia.		
1093	May 26, 1954		8° 21'S. 122° 47'E.		
			Orete Beach, New Zealand, 46° 31'S. 168° 15'E.	1	no
			Solomon Islands, Honiara, Guadalcanal, 9° 28'S 159° 52'E	1	yes
			Solomon Islands, Honiara, 9° 28'S. 159° 52'E.	1	yes
			Papua, Gaire Village, between Rigo and Port Moresby,	1	yes
			9° 35'S. 147° 12'E.		
			Papua, Singour, 60 miles south of Madang, 6° S. 146'E.	1	no
			New Guinea, Wewak, 3° 35'S. 143° 35'E.	1	yes

UNPROVOKED SHARK ATTACKS (Continued)

Case No.	DATE	NAME OF VICTIM	LOCALITY	PACIFIC OCEAN	No. of people		FATAL
					FATL	FATL	
1094	Nov. 16. 1955	Niu Bodu	New Guinea. Baibara.	9° 15'S. 148° 20'E.	1	no	
1095	Mar. 31. 1962	Kes	Matukar Village near Madang, Papua.	5° 14'S. 145° 45'E.	1	yes	
1096	Feb. 23. 1962	Hiola Hekure	Fisherman's Island, near Port Moresby, Papua, about	9° 28'S. 147° 9'E.	1	no	
1108	1960 1961	Lindsay Phillips	Viti Levu. Covell Reef, near Lautoka.	17° 36'S. 177° 28'E.	1	no	
1109	1961	Speartfisherman	New Caledonia		1	no	
1110	Jan. 15. 1962	John Till	Slipper Island, off Coromandel Peninsula, New Zealand.	37° 3'S. 175° 57'E.	1	no	
1111	Mar. 1953	Captain of cutter <i>Herahu</i>	Off Rossell Island, Louisiade Archipelago.		1	yes	
1112	Apr. 13. 1955	Kairua Gairi	11° 21'S. 154° 14'E.		1	no	
1113	Nov. 6. 1958	Boy	Off Hadrian's Island, near Port Moresby, Papua.	9° 28'S. 147° 9'E.	1	yes	
1116	Oct. 215. 1962	Pasingan	M'Buke, near Manus, Admiralty Islands.	2° 6'S. 147° 17'E.	1	no	
1131	1940	Girl	Sisi, on Manus Island, West Coast,	2° 55'S. 146° 26'E.	1	yes	
1132	1948	Fisherman	Bagalina, North Coast Misima Island, New Guinea.	10° 40'S. 152° 53'E.	1	yes	
1133	1949	Two men	Finschhafen, New Guinea.	6° 33'S. 147° 52'E.	1	yes	
1134	1949	Man	Kerpuna, Abau Island, New Guinea, about	10° 14'S. 148° 43'F.	2	yes	
1135	1949	Speartfisherman	Sohana Island, Buka Passage at north end of Bougainville Island, Solomon Islands.	5° 26'S. 154° 39'F.	1	no	
1136	1949	Ola	Aravo Islet, near Kietta, Bougainville Island, Solomon Islands.	6° 12'S. 155° 40'F.	1	yes	
1137	1949	Jalem	Finang, Kavieng, New Ireland.	2° 35'S. 150° 48'F.	1	no	
			Kulengai, southeast of Kaiili, Kavieng, New Ireland.	2° 35'S. 150° 48'E.	1	no	

1138	1949	Anonymous	Sabari Island, Calvados Chain, New Guinea, about 11° 4'S. 153° E.	1	yes
1139	1951	Anonymous	Manam Island, New Guinea, about 4° S. 144° 57'E.	1	no
1140	1952	Spearfisherman	Samo Plantation, East Coast, New Ireland Island, about 4° 57'S. 152° 58'E.	1	yes
1141	1952	Fisherman	Momoie, Manus Island, Admiralty Islands, 2° S. 147° 28'E.	1	yes
1142	Oct. 12, 1952	Fisherman	Lalaura, Abau Island, New Guinea, about 10° 17'S. 148° 41'E.	1	no
1143	1953	Man	Kahuli, Buka Is., Solomon Islands, about 5° 10'S. 154° 43'E.	1	yes
1144	1954	Boy	Volupai, Talasea, New Britain Island, about 4° 55'S. 151° 22'E.	1	no
1145	Dec. 9, 1954	Leva Kailovo	Port Moresby, Kila Beach, New Guinea, about 9° 28'S. 147° 9'E.	1	yes
1146	Mar. 1955	Lidua	Kabinian, West Coast, New Ireland Island, about 2° 34'S. 150° 48'E.	1	no
1147	1955	Pakau	Lavongai, Kavieng, New Ireland Island, 2° 35'S. 150° 48'E.	1	no
1149	Oct. 20, 1956	Bogana Satati	Papua, Kapakapa, 9° 45'S. 147° 29'E.	1	no
1150	1956	Anonymous	Kimuta, Renard Island, Solomon Islands, about 8° 35'S. 157° 22'E.	1	no
1152	1956	Man	Manus, Hus Island, about 2° S. 147° E.	1	no
1153	1956	Lamoman	Kavieng, Enuk Island, Bismarck Archipelago, about 2° 35'S. 150° 48'E.	1	yes
1154	1957	Fisherman	Duke of York Island, Bismarck Archipelago, 4° 12'S. 152° 28'E.	1	yes
1155	1957	Fisherman	Laluoro, Abau Island, about 10° 13'S. 148° 44'E.	1	yes
1156	1958	Anonymous	Brooker Island, Calvados Chain, 11° 5'S. 152° 21'E.	1	yes
1157	1958	Fisherman	Korem, Finschhafen, 6° 33'S. 147° 51'E.	1	no
1158	July 1958	Anonymous	Mariizoan, Namatanai, south of East Cape, New Ireland, 3° 40'S. 152° 26'E.	1	yes
1159	1958	Spearfisherman	Bulu, Talasea, New Britain Island, 5° 20'S. 150° 1'E.	1	yes
1160	1958	Spearfisherman	Kombe, Talasea, New Britain Island, 5° 20'S. 150° 1'E.	1	yes

UNPROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	PACIFIC OCEAN	NO. OF PEOPLE	FATAL
1161	Apr. 1958	Fisherman	Nasigilatu (near Malasanga), Finschhafen, 6° 35'S. 147° 51'E.		1	no
1162	Oct. 1958	Man	East Nakanai, Talasea, 5° 20'S. 150° 1'E.		1	no
1163	Dec. 1958	Anonymous	Taludig, Madang, 5° 14'S. 145° 45'E.		1	no
1164	Jan. 12, 1959	Man	Uga, Baniara, Milne Bay, 10° 20'S. 150° 23'E.		1	no
1165	Oct. 1959	Anonymous	Taludig, Madang, 5° 14'S. 145° 45'E.		1	no
1166	1959	Pasinganlas	Enuk Island, Kavieng, 2° 34'S. 150° 48'E.		1	yes
1167	1959	Spearfisherman	Poi, Kombe, Talasea, 5° 20'S. 150° 1'E.		1	no
1168	1959	Fisherman	Kalapai, Kombe, Talasea, 5° 20'S. 150° 1'E.		1	no
1169	May 1960	Anonymous	Taludig, Madang, 5° 13'S. 145° 50'E.		1	yes
1170	July 1960	Fisherman	Bimat, Bogia, 4° 18'S. 144° 59'E.		1	no
1171	Nov. 1960	Fisherman	Paramana, Abau Island, 10° 13'S. 148° 44'E.		1	yes
1172	1960	Fisherman	West Nakanai, Talasea, 5° 20'S. 150° 1'E.		1	no
1173	May 17, 1961	Man	Kokopo, New Britain, 4° 22'S. 152° 15'E		1	no
1174	June 2, 1961	Spearfisherman	Rabaul, New Britain, 4° 13'S. 152° 11'E.		1	no

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	SOUTH AMERICA, ATLANTIC COAST	NO. OF PEOPLE	FATAL
255	Jan. 22, 1954	Alfredo Aubone	Miramar Beach, Buenos Aires, Argentina, 34° 35'S. 58° W.	1	no	
260	Aug. 1-8, 1951	Anonymous	Cartagena, Colombia, 10° 28'N. 75° 33'W.	4	yes	
387	Feb. 27, 1959	Roland Gerbeau	Margarita I., Venezuela, about 11°N. 64°W.	1	no	

PROVOKED SHARK ATTACKS

Provoked shark attacks include all cases in which a shark was caught, trapped, speared, injured, or in some way provoked, and then attacked the victim.

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	AFRICA	NO. OF PEOPLE FATAL
382	May 30, 1959	Tony Dicks	Port Elizabeth, Algoa Bay at Bird Island, 33° 50'S. 26° 17'E.		1 no
763	Feb. 24, 1960	Souleymane S.	Ziguinchor, Casamance, Senegal, 12° 35'N. 16° 20'W.		1 no
859	Apr. 20, 1960	P. Wagener	Port Alfred, South Africa, 33° 36'S. 26° 54'E.		1 no
860	Mar. 7, 1961	J. J. Rickert	St. Lucia Estuary, Zululand, 28° 23'S. 32° 25'E.		1 no
1054	July 20, 1962	Takemoto Masnori	Off Mtwalume, South Africa, 30° 30'S. 31° 25'E.		1 no

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	ATLANTIC OCEAN	NO. OF PEOPLE FATAL
716	?	Dr. H. Teas	Puerto Rico, 18° 29'N. 68° 8'W.		1 no
717	Aug. 12, 1954	Dr. H. Warmke and Dr. H. Teas	Boqueron, Cuba, 21° 59'N. 75° 7'W.		2 no
718	?	Skin diver	Near Ramey Air Force Base, Puerto Rico, 18°N. 66°W.		1 no
719	Feb. 1958	R. Gerringer	Water Island, St. Thomas, Virgin Islands, 18° 22'N. 64° 57'W.		1 no
749	July 16, 1939	E. F. Macewan and G. W. Barnes	Off Andros I., Bahama Islands, 24°N. 78°W.		1 no
773	1923	Man	Off Ocean City, New Jersey, 39° 16'N. 74°W.		1 no
797	1955	Romilio	Cojimar, Cuba, 23° 10'N. 82° 15'W.		1 no

PROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	ATLANTIC OCEAN	NO. OF PEOPLE	FATAL
864 949	Unknown Sept. 8, 1934	Sandrillio Ernest Gibbons	Havana or Cojimar, Cuba. Off Frascati Flats, Bermuda.	23° 10'N. 82° 15'W. 32° 18'N. 64° 47'W.	1 1	no no
CASE NO.	DATE	NAME OF VICTIM	LOCALITY	AUSTRALIA	NO. OF PEOPLE	FATAL
90	Dec. 10, 1940	M. Garien	Darwin 12° 28'S. 130° 51'E.		1	no
141	Nov. 27, 1936	Frank McDonnell	Near Thursday Island. 10° 35'S. 142° E.		1	no
203	Feb. 7, 1960	John Gillies & Harry Dowswell	Wattamolla (Wata Mooli), National Park. 34°S. 151°E.		2	no
472	Apr. 1877	Boy	Smelting Works Bay, near Hobart, Tasmania. 42° 52'S. 147° 20'E.		1	no
508	Apr. 11, 1929	D. Manners	Bribie Passage, Caloundra, 27°S. 152° 59'E.		1	no
516	Mar. 6, 1931	A. Ewen	Encounter Bay, about 36°S. 139° 30'E.		1	no
519	Aug. 30, 1932	D. Bennett	Newcastle. 32° 58'S. 151° 48'E.		1	no
521	Aug. 30, 1932	Man	Bondi. 34°S. 151° 14'E.		1	no
530	June 1934	Fisherman	Northern New South Wales		1	no
537	Mar. 13, 1935	W. C. Beitz	Pimpama R.. 28°S. 152°E		1	no
550	June 1937	D. Emmerton	Wallaomba R., near entrance to Wallis Lake, 32° 13'S. 152° 35'E.		1	no
555	Jan. 1938	Man	? Near Sydney. 33° 52'S. 151° 12'E.		1	no
557	Jan. 25, 1938	E. Corowa	Tweed Heads. 28° 10'S. 153° 30'E.		1	no
566	Feb. 3, 1937	Man	Off Moreton Island. 27°S. 153° 20'E.		1	?
681	Dec. 10, 1959	Harold Walker & Barry Smith	Altona, Melbourne. 37° 55'S. 145°E.		2	no
690	Apr. 22, 1960	Ted Nelson	Rottnest. 32° 1'S. 115° 28'E.		1	no

703	Jan 13, 1960	Ron Christmas	Geraldton 28° 49'S. 114° 36'E.	1	no
826	Jan. 15, 1961	Bobb Webb	Cook Island off Fingal, 28° 10'S. 153° 30'E.	1	no
868	Apr. 16, 1961	Douglas John Spooner	Otford, near Waterfall, New South Wales, 34° 15'S. 151° 8'E.	1	no
876	Nov. 11, 1960	Ken O'Connell	Scott's Point, Redcliffe Peninsula, Queensland, 27° 12'S. 153° 3'E.	1	no
882	May 7, 1961	Graeme Arbuckle	Quinn's Rocks, south of Yanchep, 31° 31'S. 115° 30'E.	1	no
937	Jan. 6, 1961	Arthur Hopkins	Stokes Hill Wharf, Darwin, 12° 23'S. 130° 44'E.	1	no
938	Mar. 14, 1961	Kath. O'Neill	Shark Bay, Western Australia, 25°S. 114° 30'E.	1	no
940	Apr. 25, 1961	John Davy and John Pierpoint	Trial Bay, north of Kempsey, 30° 53'S. 152° 52'E.	2	no
941	Apr. 26, 1961	Gerry Greaves and Beatrice Street	Oxford, 2 miles north of Stanwell Park, 34° 4'S. 150° 57'E.	2	no
1101	Mar. 1953	Helmutn Scheidl	Long Reef, Sydney, 33° 52'S. 151° 12'E.	1	no
1105	Nov. 9, 1959	Ian Marks	Mt. Lawley, Perth, 32° 7'S. 115° 44'E.	1	no

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	EUROPE	No. of people	
					FATAL	FATAL
770	June 27, 1960	Hans Yoachim Schapper	Wick, Scotland, 58° 26'N. 3° 6'W.	1	no	
786	Aug. 4, 1960	William Capel	Devon Coast, England, 50° 10'N. 4° 16'E.	1	no	

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	NORTH AMERICA, EAST COAST	No. of people	
					FATAL	FATAL
207	Oct. 11, 1916	J. L. Hanscomb	Sewalls Point, Palm Beach, Florida, 26° 40'N. 80° 3'W.	1	yes	
225	1941	Paul Ruble	15 miles south of Jones Inlet, New York, 40° 36'N. 73° 35'W.	1	no	

PROVOKED SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	NORTH AMERICA, EAST COAST	NO. OF PEOPLE		FATAL
401	July 2, 1959	King Scherer	Delray Beach, about $\frac{1}{2}$ mile south of Seagate Hotel, Florida.	1	no		
631	Apr. 30, 1958	Johnny Bowers	26° 30' N. 80° 5' W.	1	no		
632	1958	Phil Case and Mr. Gray	Off Miami Beach, Florida. 25° 47' N. 82° 35' W. Seaquarium, Virginia Key, Miami, Florida.	2	no		
737	July 3, 1960	Eisworth Smith	25° 45' N. 80° 10' W.	1	no		
752	Sept. 1, 1958	John Leszczak	Hog Island Bay, Virginia. 37° 25' N. 75° 43' W. Off Staten Island, New York. 40° 35' N. 74° 5' W.	1	no		
758	Aug. 10, 1960	Richard Henn	Key Largo Sound, Florida. 25° 10' N. 80° 30' W.	1	no		
777	Sept. 24, 1960	Thelton Gore	Atlantic Beach, South Carolina. 34° 45' N. 78° 45' W.	1	no		
778	1956	Josh Vaughan	Virginia Beach, Virginia. 36° 51' N. 75° 59' W.	1	no		
918	July 29, 1961	Bruno Junker	Oyster Bay, Whitewood Pt., New York. 40° 54' N. 73° 27' W.	1	no		
976	June 28, 1932	Antonio Fonizzo	Off Sea Isle City, New Jersey. 39° 9' N. 74° 40' W.	1	no		
977	June 26, 1932	Giavanco Giacomo	Off Ocean City, New Jersey. 39° 16' N. 74° 35' W.	1	no		
983	Aug. 10, 1932	Olaf Larson and John Olsen	Off Mantoloking, Point Pleasant, New Jersey. 40° 6' N. 74° 2' W.	2	no		
CASE NO.	DATE	NAME OF VICTIM	LOCALITY	NORTH AMERICA, WEST COAST	NO. OF PEOPLE		FATAL
707	1958	Boy	Balboa, Canal Zone, Panama. 8° 57' N. 79° 33' W	1	no		
726	Oct. 1958	Mexican	Acapulco, Mexico. 16° 51' N. 99° 56' W.	1	no		
844	July 13, 1952	Gerald Howard	San Diego, California. 32° 45' N. 117° 12' W.	1	no		
846	July 17, 1938	Harry Griffet	Off Dana Point California. 33° 28' N. 117° 40' W.	1	no		

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	PACIFIC OCEAN	No. of PEOPLE		FATAL
847	July 16, 1953	Forest M. Richel	Santa Catalina Island, California, 33° 21'N. 118° 19'W.		1	no	
848	June 16, 1949	Raymond T. Gold	Redondo Beach, California, 33° 51'N. 118° 34'W.		1	no	
850	Mar. 9, 1941	Frank Martinez	Off Santa Monica, California, 34°N. 118° 25'W.		1	no	
852	June 29, 1954	Frank Donahue	Off Santa Monica, California, 34°N. 118° 25'W.		1	no	
853	Aug. 1, 1939	John Ray	Off San Pedro, California, 33° 45'N. 118° 19'W.		1	no	
981	Aug. 28, 1933	Nathaniel C. Myrick	Hermosa Beach, California, 34°N. 118° 15'W.		1	no	
286	July 1, 1941	Fisherman	Hawaii		1	no	
290	Feb. 18, 1953	Fisherman	Barbers Point, Hawaii, 21° 15'N. 158° 10'W.		1	no	
329	Dec. 1956	Fisherman	New Zealand		1	no	
1042	Unknown	Dave Lloyd	Waikiki, Hawaii, 21° 19'N 157° 50'W.		1	no	
1118	Feb. 18, 1962	Fred Mason	Long Beach, Southland, New Zealand, 44° 05'S. 171° 40'E.		1	no	
1119	Mar. 25, 1962	W. T. Luxton	Alderman Island, New Zealand, 37°S. 176° 6'E.		1	no	
1175	Mar. 1948	Fisherman	Pumam Passage, New Ireland, 4°S. 155°E.		1	no	
1176	1948	Fisherman	Tung Island, off West Coast Buka Island, Solomon Islands. about 5°S. 154° 30'E.		1	no	
1177	Feb. 1959	Fisherman	Ururumba, mouth of Kikori River about 7°40'S. 144° 40'E.		1	no	
1178	Nov. 1959	Fisherman	Rapindik Beach, Rabaul, 4° 13'S. 152° 11'E		1	no	
1179	1959	Fisherman	Morobe, New Guinea, 7° 45'S. 147° 39'E.		1	no	
1180	Nov. 1960	Fisheries trainee	Toro Passage (Western District), 7° 26'S. 144° 40'E.		1	no	
1181	June 1, 1961	Mark-Pokas	Rossun, Manus, about 2°S. 147°E.		1	no	
1182	Aug. 1961	Fisherman	Vanimo, New Guinea, 2° 40'S. 141° 17'E.		1	no	

ATTACKS BY SHARKS ON BOATS

Attacks by sharks on boats include all cases in which an unprovoked or provoked shark deliberately made physical contact with a boat, life raft, water ski, or equipment being used in the operation of a boat.

CASE NO.	DATE	NAME OF BOAT OR OCCUPANT	LOCALITY	
			AFRICA	ATLANTIC OCEAN
651	Nov. 15, 1959	Sea Hawk. Occupants: R. Roberts and 4 others	False Bay, near Swartklip, 34° 14'S. 18° 29'E.	
814	Nov. 8, 1960	24-foot fishing boat	Gordon's Bay Harbor, 34° 10'S. 18° 52'E.	
815	Oct. 24, 1960	Fishing Boat	Jacob Bay (reef), near Saldanha, north of Cape Town. 32° 57'S. 17° 52'E.	
945	Jan. 25, 1961	Dinghy of Wm. and Jan Groenwald	Frikkies Bay, near Gans Bay, 34° 38'S. 19° 18'E.	
1049	Jan. 6, 1962	16-foot boat <i>Perry</i>	16 miles off Mossel Bay, 34° 12'S. 22° 8'E.	
1127	June 21, 1962	8-foot rowing boat. Occupants: E. Brown; J. Welz; and C. Stakenburg	False Bay, 50 yds. north of Miller's Point, 34° 10'S. 18° 30'E.	
1128	Aug. 23, 1962	Bit propeller. Occupant: Cecil Holmes	Melkbosstrand, 33° 44'S. 18° 26'E.	
CASE NO.	DATE	NAME OF BOAT OR OCCUPANT	LOCALITY	
			ATLANTIC OCEAN	
658	?	Bonita fishing boat 40 feet long	Off Sao Miguel, Azores, 37° 44'N. 25° 40'W.	
659	Aug. 1943	Mackerel row boat	Off Sines, Portugal, 37° 58'N. 8° 52'W.	
660	July 1943	" "	" "	
709	July 1959	Boat of Richard A. Wade	Halfway between Miami, Florida, and Bimini, Bahamas, 25° 45'N. 79° 25'W.	

753	May 24, 1960	Boat of Ross Doe and 2 men
800	1957	Boat of Mr. Portuondo
801	1926	Fishing boat of Walter Butterworth
832	Unknown	Boat of Van Campen Heilner
1021	Unknown	Cruise ship Yankee, Capt. Irving Johnson, owner
1025	Unknown	12-ft. skiff. Occupant: E. R. Fenimore Johnson

CASE NO.	DATE	NAME OF BOAT OR OCCUPANT	LOCALITY	AUSTRALIA
459	Feb. 26, 1804	15 foot boat sank	Port Jackson, George's Head, 33° 52'S. 151° 12'E.	
494	Oct. 17, 1923	14 foot boat sank, bow lifted 2' out of water	Black Head, Taree, 31° 54'S. 152° 26'E.	
502	July 3, 1927	Canoe pushed 100 yards	Bellambi, 34° 20'S. 150° 57'E.	
505	Feb. 1929	12 foot boat. 7 teeth in wood	Glenelg, 34° 59'S. 146° 22'E.	
512	Dec. 2, 1930		Rosebud, Victoria, 38° 21'S. 144° 20'E.	
517	May 3, 1931		Kempsey, 31° 5'S. 152° 20'E.	
518	Jan. 11, 1932		Frankston, 38° 8'S. 145° 7'E.	
524	Feb. 16, 1933	Shark leaped into boat	Adelaide, 35° 1'S. 138° 25'E.	
527	Mar. 1934	Shark hooked	Cronulla, 34° 4'S. 151° 10'E.	
531	July 11, 1934		Cronulla, 34° 4'S. 151° 10'E.	
533	1934 or 1935		Oberon Bay, 39° 4'S. 146° 20'E.	
534	Jan. 1935	A, and E. Norton; boat sank	Ross Creek, Townsville, 19° 13'S. 146° 48'E.	
539	Dec. 23, 1935		Lorne, 38° 34'S. 144° 1'E.	
540	Mar. 4, 1936		Near Cape Hotham, 12° 3'S. 131° 17'E.	
543	Dec. 16, 1936	J. and A. Ayerst	Newcastle, 32° 58'S. 151° 48'E.	
544	Dec. 19, 1936	C. E. Slaughter; shark teeth in wood	Brisbane R., 27° 28'S. 153° E	
545	Feb. 1937		Adelaide, 35° 1'S. 138° 25'E.	
546	Feb. 3, 1937	Albert Cree and John Blacksall; shark teeth in wood	Botany Bay, 34° S. 151° 14'E.	

ATTACKS BY SHARKS ON BOATS (Continued)

CASE NO.	DATE	NAME OF BOAT OR OCCUPANT	LOCALITY	AUSTRALIA
561	Nov. 6, 1939		Wollongong. 34° 25'S. 150° 52'E.	
562	Nov. 9, 1939	Boat attacked by gaffed shark	" "	"
563	Nov. 11, 1939	Canoe almost collapsed	Off Maroubra. 33° 57'S. 151° E.	
564	Feb. 20, 1940	Harry Lone; shark leaped into launch	Sydney Harbor, 33° 52'S. 151° 12'E.	
567	Dec. 1946	Doug Miller's 16-foot boat	Gladstone. 23° 52'S. 151° 16'E.	
568	Dec. 1949	G. Nardelli and his son; rudder torn off 16-foot boat	Seaholme, Victoria (or Seacombe). 38° 6'S. 147° 28'E.	
569	Apr. 7, 1953	Clarrie Whelan	Off New South Wales Coast about 1½ miles. Newby (Newry). 20° 51'S. 148° 57'E.	
570	Apr. 1946	10-foot boat; attacked 20 times	Off Port Augusta. 32° 30'S. 137° 46'E.	
571	Aug. 1955	14-foot boat	Glenelg. 3 miles at sea. 35° S. 138° 32'E.	
572	Nov. 1947	6 sharks attacked boat	Ballambi Reef. 34° 20'S. 150° 57'E.	
573	July 1937	R. H. Barrett: steering oar attacked	Coff's Harbor. 30° 19'S. 153° 5'E.	
574	Feb. 1955	Dick Brown; oar attacked	Off Semaphore. 34° 51'S. 138° 29'E.	
575	1865	Two boys; boat lifted a foot out of water	Parramatta R.. Sydney Harbor. 33° 49'S. 151° 18'E.	
578	Feb. 1, 1955	Knut Dahl: oar attacked	Off Balls Head. Berry Bay, Sydney Harbor. 33° 52'S. 151° 12'E.	
579	?	Surf-ski paddle bitten	Chowder Bay, Sydney. 33° 52'S. 151° 12'E.	
588	Jan. 1880	Dinghy	Dampier's Creek, Broome. 17° 58'S. 122° 15'E.	
596	1895	Tewanin. 26° 20'S. 153° E.	Manly. 33° 47'S. 151° 17'E.	
601	Jan. 18, 1942	Stanley, Tasmania. 40° 46'S. 145° 20'E.		
604	Oct. 1944	Storm Bay, Tasmania. 43° S. 146° 30'E.		
605	1946	Newcastle. 32° 58'S. 151° 48'E.		
606	1946	18 miles south of Port Augusta. 32° 48'S. 137° 46'E.		
607	Nov. 1947	Port Phillip Bay. 38° S. 145° E.		
612	Mar or Apr 1949	Leichhardt, Sydney. 33° 52'S. 151° 9'E.		
637	Feb. 28, 1959	Scotts Point Beach, near Redcliffe. 27° 14'S. 153° 8'E.		
640	Dec. 28, 1959	Outer Harbor. 34° 40'S. 138° 30'E.		
652	Dec. 29, 1959			
656	Nov. 11, 1959			

663	Jan. 7, 1960	16-foot boat of W. Lonergan	Off Eaglehawk Neck, Hobart, Tasmania, 42° 54'S. 147° 18'E.
701	Mar. 31, 1960	Boat of Clive Whitrow	Hog Bay, near Port Noarlunga, 35° 44'S. 137° 57'E.
704	Feb. 10, 1960	Boat of Jack Platt and Peter Keyes	Ben Buckler, 33° 55'S. 151° 18'E.
747	Dec. 6, 1950	Two boys in a canoe	Brisbane, 27° 28'S. 153° E.
771	Jan. 21, 1960	Dinghy of S. Smith and 2 girls	Millicent, South Australia, 37° 36'S. 140° 22'E.
827	Sept. 18, 1960	12-foot bondwood Dinghy	Frenchman Bay, 30° 30'S. 115° E.
894	July 27, 1961	Launch of Bill Fullham	Cape Moreton, 27° 2'S. 153° 25'E.
997	Jan. 2, 1962	Surf patrol boat	Off Seaspray, near Sale, 38° 6'S. 147° 6'E.
1003	1961	Mackerel fishing boat	South Coast, about 38°S. 150°E.
1010	Jan. 14, 1962	Gunwhale of boat. Occupant: Wally Gibbons	North Manly, Long Reef, 33° 52'S. 151° 12'E.
1012	?Jan. 10, 1962	25-foot cutter. Occupant: Alf Dean	Ceduna, 32° 7'S. 133° 42'E.
1020	Jan. 11, 1962	12-foot boat. Occupant: Alf Laundry	Marino, 35° 2'S. 138° 31'E.
1028	Jan. 7, 1962	Surfboat and oar. Occupants: Lifesavers	Dickey Beach, 26° 47'S. 153° 08'E.
1032	Mar. 24, 1962	Fishing boat, owner Dennis Kemp	Norah Head, near Gosford, 33° 25'S. 151° 18'E.
1048	May 1962	17-foot boat attacked by 3 sharks	Off Sydney, 33° 55'S. 151° 15'E.
1050	Dec. 19, 1961	20-foot boat. Occupant: Frank Stocker	Few miles off shore from Cowell, about 33° 38'S. 136° 50'E.
1123	Apr. 20, 1962	Surf boat. Occupants: Ray Sturdy and 4 crew-members	Nobbys Beach, 31° 26'S. 152° 55'E.
1126	June 7, 1962	10-foot boat. Occupant: John Stephensen	Emu Point, 34° 59'S. 117° 56'E.
1129	Nov. 10, 1962	Small fishing boat. Occupants: Jack Bullman and Keith Campbell	Off Kiama, 34° 41'S. 150° 49'E.

CASE NO.	DATE	NAME OF BOAT OR OCCUPANT	LOCALITY	EUROPE
971	1937	Glen Sannox	Arran, Argyllshire, Scotland, 55° 35'N. 5° 15'W.	
1006	1937	Sailboat capsized, 3 persons drowned	Carradale Bay, Scotland, 55° 35'N. 5° 15'W.	

ATTACKS BY SHARKS ON BOATS (Continued)

CASE NO.	DATE	NAME OF BOAT OR OCCUPANT	LOCALITY	NORTH AMERICA, EAST COAST
391	Aug. 1, 1900	Dr. W. T. Healey, Dr. H. Callahan, W. A. Redden, W. Wheeler	Pleasant Beach, Connecticut, in Long Island Sound, 41° 10'N. 73° 15'W.	
506	Sept. 2, 1959	Man in an inflated raft	Off Oak Beach, Fire Inlet, New York, 40° 37'N. 73° 18'W.	
577	Sept. 26, 1959	E. J. Wines, W. Waller, and L. Waller	Near Air Station Boat Docks, Albergotti Creek, near Beaufort, North Carolina, 34° 40'N. 76° 40'W.	
627	Dec. 11, 1955	P. D. Neilly and Charleton Anderson	9 miles north of Fort Pierce, Florida, 28° 25'N. 80° 19'W.	
636	Mar. 1959	R. P. L. Straughan	Key Largo, Florida, 25° 10'N. 80° 25'W.	
670	Mar. 9, 1953	12 to 14 foot dory of John D. Burns, latter drowned; man rescued	Fourchu, Cape Breton Island, Nova Scotia, 45° 43'N. 60° 17'W.	
710	May 16, 1960	Boat of W. A. Stark, 2nd	Lignum Vitae Channel, Florida Keys, 24° 55'N. 81° 45'W.	
711	May 16, 1960	" "	" " " " "	
712	About 1957	" "	" " " " "	
713	About 1925	" " W. A. Stark,	Florida Keys, 25°N. 81°W.	
715	Dec. 2, 1944	Boat of Alan P. Moree and fisherman	Off Palm Beach, Florida, 26° 40'N. 80° 3'W.	
725	?	Boat of Helen C. Gullison	Summerland and Big Pine, Florida, 24° 40'N. 81° 25'W.	
746	June 27, 1952	Boat of George Lunsford	Panacea, Florida, 30° 4'N. 84° 20'W.	
756	1959	Boat of Victor and Stephen Iverson, and Joseph Arcisz	Stallwagon Banks, 20 miles north of Gloucester, Massachusetts, 42° 47'N. 70° 54'W.	
809	Sept. 21, 1922	Boat of Mr. Goslin, with 4 passengers	Off Nahant, Massachusetts, 42° 25'N. 70° 55'W.	
821	Nov. 18, 1928	Boat of Charles Anderson and 2 fishermen	Seabright, New Jersey, 40° 20'N. 73° 55'W.	
822	June 6, 1923	Boat and buoy, occupied by Carl Sjostrom	Vera Cruz Harbor, Mexico, 19° 11'N. 96° 10'W.	
829	July 12, 1926	Boat of Andrew Peterson and Peter Jergeson	Off Seabright, New Jersey, 40° 20'N. 73° 55'W.	
892	1941-1945	Boat of W. S. Davidson	Ponte Vedra Beach, Florida, 30° 13'N. 81° 23'W.	
914	?	Small boat	Off St. Johns, Florida, 30° 20'N. 81° 40'W.	
951	July 23, 1941	<i>Binggo III</i> , boat of Michael Perkins	Off Brielle, New Jersey, 40° 6'N. 74° 2'W.	
973	July 12, 1936	Boat of Saul White	5 miles off Long Beach, New Jersey, 40° 35'N. 73° 54'W.	

991 Aug. 27, 1931 Boat of Nels Jacobson and Franklin Harriman Off Shrewsbury Light near Sandy Hook, New Jersey.
Covert
40° 30'N. 74°W.

992 1923 Boat of Richard Rodney Sea Bright, New Jersey, 40° 20'N. 73° 55'W.

Case No.	Date	Name of Boat or Occupant	Locality	North America West Coast
400	June 5, 1958	Bob Shay	Pacific Beach, California, 32° 45'N. 117° 11'W.	
441	July 30, 1959	James L. Randles, Jr.	Off La Jolla, California, 32° 50'N. 117° 16'W.	
649	July 23, 1959	Woodrow Smith	" "	"
650	July 25, 1959	Robert Agnew	Mission Beach, California, 32° 48'N. 117° 15'W.	
830	Sep. 10-12, 1959	Boat of Henry Tervo	Between False Klamath and mouth of Klamath River, California, 41° 33'N. 124° 5'W.	
978	Jan. 6, 1932	Rowboat capsized	Descanso Point, Lower California, 32° 51'N. 116° 35'W.	

Case No.	Date	Name of Boat or Occupant	Locality	Pacific Ocean
501	Dec. 12 or 13, 1959	Don Ashton	Mokohinau Island, northern New Zealand, 35° 55'S. 175° 10'E.	
772	July 2, 1960	Whale Chaser Boat	Cook Strait, New Zealand, 41°S. 174° 30'E.	
964	Feb. 1934	Raft of John Pitzes and Arthur Martin	Off Western Coast of Mexico	
1009	Jan. 16, 1962	Fishing launch. Occupants: A. C. Reynish and R. Meikle	Pigeon Bay, Canterbury, New Zealand, 43° 40'S. 173°E.	
1019	?Oct. 1961	Canoe overturned	Leleppa Island; near Vila, New Hebrides, 17° 45'S. 168° 18'E.	
1125	Feb. 2, 1962	17-foot fishing launch. Occupants: A. Burkitt and C. Brooke	South of New Plymouth, New Zealand, 39° 3'S. 174° 4'E.	
1148	Apr. 1955	Canoe attacked.	Abau, Papua, 10° 17'S. 148° 41'E.	

ATTACKS BY SHARKS ON BOATS (Continued)

CASE NO.	DATE	NAME OF BOAT OR OCCUPANT	LOCALITY	INDIAN OCEAN
754	Feb. 23-Mar. 27, 1953	<i>Rufi of Despair</i> . Occupants: Ensio Tiira and Fred Ericsson	Straits of Malacca to 300 miles from Ceylon	
1071	1943	A 17-foot dinghy, <i>Gilca</i> , had rudder smashed.	Near Sumatra, Indian Ocean	

AIR AND SEA DISASTERS

Air and sea disasters include all cases in which unprovoked sharks have eaten or mutilated victims of such disasters, but there may not be any way of knowing whether the victims died before being attacked or as a result of the shark attack.

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	AFRICA	NO. OF PEOPLE	FATAL
371	June 30, 1910	<i>Durao</i> , crew and passengers	Zambesi R., about 18° 20'S. 36° E.		17	yes
1064	During War ca. 1940	<i>Puquebot Lacomia</i> torpedoed. Michael Setti, one of the passengers, bitten by shark.	Between Cape of Good Hope and Dakar, Africa		1	no
1069	Oct. 1942	<i>City of Cairo</i> , torpedoed, one of the firemen taken by a shark.	Five miles out of Cape Town, headed for St. Helena, S. Africa, 14° 27'N. 17° 27'W		1	yes
1077	1960	Air France Super-Constellation crash, loss of 63 lives	Dakar, Africa, 14° 38'N. 17° 27'W.		63	yes
CASE NO.	DATE	NAME OF VICTIM	LOCALITY:	ASIA	NO. OF PEOPLE	FATAL
1079	Apr. 1961	<i>Dura</i> , cargo ship sank during storm	Persian Gulf		?	?

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	ATLANTIC OCEAN	NO. OF PEOPLE	FATAL
418	Aug. 1904	Two sailors, boat sank	Caibarien Harbor, Cuba, 22° 32'N. 79° 28'W.		2	yes
626	June 6, 1950	Pedro Guzman, boat sank	275 miles N.E. Miami, Florida, about 29°N. 77°W.		1	yes
657	Sept. 18, 1953	Airplane explosion; 9 survivors, 7 fatalities	East of Savannah, Georgia, about 200 miles, 32°N. 77° 30'W.		7	yes
728	1898	13 men in capsized sailboat	Off Santiago, Cuba, 20°N. 75° 49'W.		6	yes
745	Mar. 8, 1942	Ship torpedoed	Caribbean Sea		7	no
803	Nov. 22-27, 1961	Sarah Peggy Sargent (lost overboard)	Hutchinson Island Beach, near Martin, Florida, 27° 30'N. 80° 20'W.		1	yes
833	Oct. 27, 1927	<i>Principessa Mujalda</i> , Italian Liner, sank	Off Rio de Janeiro, Brazil, 22° 53'N. 43°W.	1,256	? 295 yes	
834	Oct. 23, 1926	<i>Valerian</i> , British patrol vessel	Southwest of Bermuda, about 18 miles, 32°N. 65°W.	104	20 no	
835	Jan. 6, 1961	<i>Pacific Seafarer</i> of U.S. Navy	East of La Grande Island, North of Panama Canal, 9° 35'N. 79° 35'W.	6	? 84 yes	
836	Jan. 1, 1961	UR-2 Boat; Joe Chaney, Pete Gebhard	Roncador Bank, North of Panama Canal in Atlantic, 13° 35'N. 80° 41'W.	2	3 no	
866	Unknown	Fisherman on the <i>Sun Carlos</i>	Near Havana, Cuba, 23° 7'N. 82° 25'W.	1	yes	
874	Jan. 13, 1923	<i>Seaplane Columbus</i>	Near Big Pine Key, 40 miles North of Key West, about 24°N. 81°W	5	no	
885	June 26, 1867	Boat from the ship <i>Josephine</i> capsized	"Rumadoss" (probably Remedios), Cuba 22° 30'N. 79° 30'W.	4	yes	
886	Apr. 14, 1960	CS2F-1 Airplane	180 nautical miles west-northwest of Bermuda, about 33°N. 68°W.	2	no	
895	1943	Survivors from German submarine	Off West Africa	3	no	
927	Sept. 23, 1961	Plane crash, Patrick J. Imhof attacked; P. D. Hofstied and J. M. Dockery not attacked	Mid-Atlantic, 35° 15'N. 65° 10'W.	3	no	

AIR AND SEA DISASTERS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	ATLANTIC OCEAN	No. OF PEOPLE	FATAL
931	May 24, 1933	Yacht capsized; owner Michael Howell	Off Pelican Island, Barbados Islands, 13° 18'N. 59° 39'W.	5	no	
933	June 17, 1938	Elena Hodgson, Isaac Ollis on <i>Elizabeth</i>	Lower San Juan River, Costa Rica, 10° 55'N. 83° 41'W.	4	yes	
948	Jan. 1941	Ship sank; R. E. G. Cox and 2 others	Mid-Atlantic	12	3 no 9 yes	
950	Mar. 24, 1941	<i>Britannia</i>	700 miles off African Coast	10	no	
962	Sept. 1948	<i>Leicester</i> sank in hurricane	Mid-Atlantic	many	yes	
966	Mar. 2, 1943	<i>Ofonso Penna</i> sunk by torpedo	Off Coast of Brazil	2	yes	
969	June 6, 1950	C-46 Airplane	275 miles northeast of Miami, about 28° 30'N. 77°W.	?	no	
988	June 20, 1956	Venezuelan airplane	Mid-Atlantic	1	yes	
1006	1937	Sailboat capsized by basking shark	Carradale Bay, Scotland, 55° 35'N. 5° 15'W.	6	yes	
1013	Aug. 25, 1960	Naval aviator	30 miles southeast of Corpus Christi, Texas, about 27° 30'N. 97°W.	3	yes	
1063	July 1916	S. S. <i>Ramos</i> sank during hurricane, one man taken by shark.	50 miles off the Bahamas	2	no	
1068	June 1942	Seaman floating on a liferaft bitten on forearm by shark	300 miles East of St. Thomas, Virgin Islands	1	no	
1070	Nov. 1942	Ship torpedoed	Several hundred miles off South American coast	Many	yes	
1072	Feb. 1948	C-47 aircraft ditched, Pilot Neil Womack attacked by sharks	Between Brownsville and Carmen in Gulf of Mexico, Mexico	1	yes	
1074	Oct. 1954	<i>Mormackite</i> , a capsized freighter	150 miles southeast of Cape Henry, Virginia.	2	yes	

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	AUSTRALIA	No. of PEOPLE		FATAL
CASE NO.	DATE	NAME OF VICTIM	LOCALITY	INDIAN OCEAN	No. of PEOPLE		FATAL
136	Mar. 22, 1936	Japanese sailor	Shelburne Bay, 11° 49'S. 143°E.		1	no	
314	Jan. 1930	Five fishermen	Tamarin Bay, Mauritius, 20° 18'S. 57° 22'E.		5	yes	
896	Nov. 28, 1942	S. S. <i>Nova Scotia</i> and all of the 1000 passengers	Off South Africa in Indian Ocean. 28° 30'S. 33°E.		1000	yes	
1065	World War, ca. 1939	Ship torpedoed	Off Ceylon, India		1	no	
1067	Apr. 1942	Sinking of British cruisers H.M.S. <i>Cornwall</i> , H.M.S. <i>Dorsetshire</i>	Indian Ocean		Many	yes	
1076	Feb. 1960	Portuguese Airliner <i>El Gamil</i> , cargo ship	Crashed between Timor and Darwin En route Suez to Aden, sank in Red Sea		9	yes	
1078	Oct. 1960				Some	yes	
					Some	no	
CASE NO.	DATE	NAME OF VICTIM	LOCALITY	MEDITERRANEAN	No. of PEOPLE		FATAL
965	Aug. 1943	Airplane	About 40 miles south of Naples, Italy, 40° 15'N. 14°E.		3	no	

AIR AND SEA DISASTERS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	NORTH AMERICA, EAST COAST	No. OF PEOPLE		FATAL
430	July 2, 1959	Teresa Britton and a man in sinking of a petrol barge	Caribbean Sea, off Panama Canal, 9° 30'N. 80°W.		2	yes	
452	Aug. 1867	14 crewmen of <i>Elizabeth</i>	Vera Cruz Harbor, Mexico, 19° 11'N. 96° 10'W.		14	yes	
591	Nov. 16, 1959	Airplane crash, 42 passengers and crew died	120 miles southeast of New Orleans, Gulf of Mexico, 28°N. 88°W.		10±	yes	
1061	Aug. 26, 1962	21-ft. boat sank; Occupants: Max Butcher, George Hardy, Peter Thorn	Atlantic Ocean, off the Florida shore		3	no	
1106	June 25, 1962	U.S. Air Force crewman reported missing while bailing out from jet	Off Fernandina Beach, Florida, 30° 36'N. 81° 23'W.		4	1 yes	
					3	no	

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	NORTH AMERICA, WEST COAST	No. OF PEOPLE		FATAL
406	July 27, 1952	Wes Wiggins and 7 others	Off Santa Monica California, 34°N 118° 26'W		8	yes	
724	June 7, 1960	Paul Timothy Lovette and 6 others on 42-foot Navy craft	10 miles off Santa Barbara, California, 34° 15'N. 119° 40'W.		7	yes	
740	1940-1946	3 Airmen	Between Esmeraldes and Salinas, Ecuador, in Pacific, 0°N. 81°W.		1	yes	
1080	Oct. 6, 1962	Mrs. Marion Leaf	Off Santa Catalina, California, 33° 30'N. 118° 30'W.		2	no	
					1	yes	

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	PACIFIC OCEAN	No. OF PEOPLE	FATAL
379	July 4, 1958	Jonathan W. Brown, Roy A. Robinson, and a man.	200 miles northeast Johnston Island, 18°N. 166°W.		2	yes
428	Nov. 19, 1909	Passengers of <i>Lu Seye</i>	Rhio Strait, Singapore, 1° 15'N. 103° 22'E.		1	no
503	Sept. 23, 1955	Mr. Hightower and crew of airplane	Between Honolulu and Wake Island, about 20°N. 175°W.		many	yes
590	Aug. 14, 1959	15 passengers and crew of boat that sank; 5 survivors	Between Unisan and Angadanan Islands, Philippines, 10° 20'N. 122° 29'E.		2	no
621	Unknown	40 natives (boat sank)	Ellice Island, about 8°S. 178°E		several	yes
641	Dec 19, 1959	Mamerto Daanong, Tomas Inog, and about 39 others, perished in ship M.V. <i>Rizal</i> sinking	Balud, Masbate, Philippines, 12° 21'N. 123° 36'E.		38	yes
655	Aug. 20, 1959	About 100 occupants of capsized boat; 11 survivors	Off Cabuli Island, northern Palawan, Philippines, 11° 27'N. 119° 30'E.		2	no
661	Summer 1942	6 people, 3 killed by sharks when sailboat capsized	Off Sagay, Camiguin Island, Philippines, 9° 25'N. 124° 42'E.		3	yes
664	Nov. - Dec. 1959	19 people adrift in small boat 31 days	Maldavian Archipelago to Ceylon		3	no
730	?	Over 20 Fijians from double sailing canoes	Off Fiji, 17°S. 178°E.		1	yes
739	1940-1946	A. G. Reading and E. H. Almond, airmen	68 miles east of Wallis (Uvea) Island, 20° 33'S. 167°E.		few	no
741	Sept. 11 16, 1942	Nine airmen	Southwest Pacific		many	yes
775	1940-1946	Eight airmen, one attacked	Pacific Ocean		1	yes
776	1940-1946	Airman	Pacific Ocean		1	yes
779	1940-1946	Airman	St. George's Channel between New Britain and New Ireland, 4° 15'S. 152° 20'E.		1	yes

AIR AND SEA DISASTERS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	PACIFIC OCEAN	NO. OF PEOPLE	FATAL
819	Dec. 5, 1948	C-54 Air Force Transport No. 2686; 32 survived, 5 died Negros Steamer	Between Kwajalein Atoll and Johnston Island, 13°N. about 176°W.		37	5 yes 32 no
837	May 29, 1927		Bondoc (Bondog) Peninsula, Philippines, 13° 10'N. 122° 36'E.		142	55 yes
870	Feb. 3, 1960	S2F-1 Airplane	Near Maui, Hawaii, about 21°N. 156°W.		4	87 no 1 no
871	Oct. 25, 1960	F3H-2 airplane	Off Point Mugu, California, about 34° 10'N. 119°W.		1	3 yes
1014	Sep. 22, 1960	R5D aircraft sank; one body sighted, but not recovered because of shark activity	180 miles S.E. of Okinawa, about 25°N. 130°E.		29	no yes
1018	Nov. 17, 1961	Bodies from hurricane attacked by schools of sharks	Northwest of Acapulco, Mexico, about 17°N. 101°W.		Many	yes
1035	May 12, 1962	Cabin Cruiser, <i>Happy Jack</i> , sank with nine passengers. Eight were mutilated by sharks.	About 8 miles off Newport Beach, California, approx. 33° 38'N. 118° 6'W.		9	yes
1066	1942	Plane sank; Gene Aldrich had his fingers bitten by shark.	Southwest Pacific		3	no
1073	July 1953	Royal Hawaiian D.C. 6B <i>Skymaster</i> crashed. Had 38 passengers.	330 miles east of Wake Island		38	yes
1075	Nov. 1957	Pan-American Stratocruiser crashed. 44 persons aboard; 19 mutilated by sharks.	1000 miles east of Honolulu		25 19	?

DOUBTFUL SHARK ATTACKS

Doubtful shark attacks include all cases in which unprovoked sharks have approached swimmers but failed to make physical contact; this category also includes cases reported as shark attacks but which subsequent investigations tended to discredit or place in doubt, or cases in which the victim was dead before being mutilated by a shark.

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	AFRICA	No. OF PEOPLE	FATAL
760	Aug. 14, 1960	46 people perished when boat capsized Peter Hendricks	Mozambique, Lourenco Marques, Maputo R., Delagoa Bay, near Bela Vista, 26° 15'S. 32° 40'E. False Bay, Strandfontein Beach, 34° 14'S. 18° 29'E.	47	46 yes 1 no	
943	Jan. 3, 1961			1	no	
CASE NO.	DATE	NAME OF VICTIM	LOCALITY	ASIA	No. OF PEOPLE	FATAL
1082	Aug. 30, 1962	Mesamer Tov	Beach of Sharon, north of Old Roman Harbor, Apolonia, near Kfar Reshet, Israel	1	no	

DOUBTFUL SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	ATLANTIC OCEAN	No. of PEOPLE	
					FATAL	
576	Aug. 27, 1959	Body of Dorothy Barbara Rawlinson	Southlands Beach, Warwick West, Bermuda, 32° 19' N. 64° 47' W.			
788	?	Jacques-Yves Cousteau and Frédéric Dumas	Between Boa-Vista and Maio Islands, Cape Verdes Islands, 15° 40' N. 23° W.			
799	Apr. 14, 1960	Human leg in stomach	Southwest Bay, New Providence Island, Bahama Islands, 25° N. 77° 32' W.			
863	Unknown	Baby Luis Sanjurjo	Cojimar, Cuba, 23° 10' N. 82° 15' W. Almendares River, Havana, Cuba, 23° 9' N. 82° 21' W.			
CASE NO.	DATE	NAME OF VICTIM	LOCALITY	AUSTRALIA	No. of PEOPLE	
					FATAL	
83	Sept. 2, 1951	Dr. Harold Joske	Fitzroy R., Rockhampton, 23° 32' S. 150° 31' E.			
389	Apr. 27, 1959	Peter Holland	Lake Tibooburra, near Ulladulla, 35° 21' S. 150° 25' E.			
484	1880	Man	Georges Bay, Tasmania, 41° 17' S. 148° 22' E.			
495	Nov. 2, 1923	James Elton	Urunga, Bellinger Head, 30° 30' S. 152° 28' E.			
496	Nov. 12, 1923	Anonymous	Bellinger Head, 30° 30' S. 152° 28' E.			
498	Apr. 30, 1924	Anonymous	Fremantle, 32° S. 115° E.			
513	Dec. 1930	Female body attacked after death	Parramatta R., 33° 49' S. 151° 18' E.			
522	Oct. 1932	Human bones in shark	Flat Top I., Mackay, 22° 15' S. 149° 40' E.			
523	Jan. 30, 1933	Drowned man	Port Noarlunga, 35° 15' S. 138° 28' E.			
525	Jan. 3, 1934	Body	Newcastle, 32° 58' S. 151° 48' E.			

526	Jan. 8, 1934	Body	Newcastle, 32° 58'S. 151° 48'E.
538	Oct. 22, 1935	Part of man's body	Flat Top Anchorage, Mackay, 21° 9'S. 149° 13'E.
547	1937	Body of drowned man	Cornwall, 34° 4'S. 151° 10'E.
548	Mar. 10, 1937	Anonymous	Victoria
580	Mar. 1955	Two, anonymous	Sydney Harbor, 33° 52'S. 151° 12'E.
586	Nov. 17, 1839	Head of Mr. Johnson (drowned)	Sydney Harbor, 33° 52'S. 151° 12'E.
602	Mar. 4, 1942	Ronald J. Bishop's arm (drowned)	Georges R., 34° 1'S. 151° 5'E.
608	Nov. 1948	Body of Daniel Smith	Moreton Bay, 27°S. 153° 20'E.
615	Mar. 1, 1950	Hand of Peter Szot	City Beach, Safety Bay, 32°S. 115°E.
648	Jan. 18, 1959	Joe Englisch	Safety Beach, Dromana (Melbourne), 38° 20'S. 144° 58'E.
654	Aug. 30, 1959	Ron Cox	Fingal, Tasmania, 41° 37'S. 148°E.
700	Mar. 1937	Body of drowned man	Brunswick R., about 28° 40'S. 153° 30'E.
794	Apr. 25, 1935	Arm of James Smith; murdered	Coogee Aquarium, Sydney, 35° 55'S. 151° 10'E.
828	Oct. 2, 1960	B. Hooper	Northhead, New South Wales, 33° 51'S. 151° 19'E.
926	1952	Dave Rowlings	Fingal Bay, near Port Stephens, 32° 33'S. 152° 30'E.
944	Feb. 16, 1961	Len McWhinney	Carnac Island, West Australia, 32° 7'S. 115° 40'E.
995	July 27, 1961	John Parker and Bill Bradbury	Waterman's Bay Beach, Perth, 31° 58'S. 115° 49'E.
996	Dec. 29, 1961	Man, drowned	Brisbane R., 27° 30'S. 153°E.
1008	Jan. 8, 1962	Arm and other remains found in shark thought to be those of William J. S. McLeod	Lake Illawarra, 34° 33'S. 150° 53'E.
1011	Jan. 21, 1962	Robert Smith	Near South Cronulla, 34° 4'S. 151° 10'E.
1121	Jan. 3, 1962	Kenneth McLeay	Ballina Beach, Australia, 28° 50'S. 153° 37'E.
1124	Nov. 25, 1962	Hugh John Meikel	Townsville, Ross Creek, Queensland, 19° 13'S. 146° 48'E.
1130	Nov. 29, 1962	Barry May	? Sydney, Australia

DOUBTFUL SHARK ATTACKS (Continued)

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	No. OF PEOPLE		FATAL
				NORTH AMERICA, EAST COAST	NORTH AMERICA, WEST COAST	
251	1957	Mrs. Eleanor Nelson	Miami Beach, Florida, 25° 47'N. 80° 7'W.	1	no	
373	May 16, 1959	Mrs. June Goldback	Indian Rocks Beach, Florida, 27° 53'N. 82° 50'W.	1	no	
375	July 1916	Certrude Hoffman	Sheepshead Bay, New York, 40° 36'N. 73° 59'W.	1	no	
440	Aug. 15, 1959	Gary Seymour	Off Panama City, Florida, 30° 10'N. 86° W.	1	no	
629	1957	Jim Kline	Sequarium, Virginia Key, Miami, Florida, 25° 45'N. 80° 10'W.	1	no	
630	Feb. 1957	Robert P. L. Straughan	Florida Keys, about 24° 45'N. 80° 45'W.	1	no	
787	Oct. 9, 1960	John Taylor Wilson	Haulover Bridge, Miami, 25° 40'N. 80° 7'W.			
789	Sept. 1805	Parts of a man in stomach	Sag Harbor, Long Island, New York, 40° 59'N. 72° 18'W.			
792	1930	Indian	Black River mouth, Spanish Honduras, 15° 44'N. 84° 45'W.			
893	Aug. 22, 1960	Thomas McDonald	Seaside Park, Asbury Park, New Jersey, 40° 14'N. 74° W.	1	no	
929	Oct. 9, 1961	Alfred Jacob Haen	Ocean Ridge, Florida, 26° 12'N. 80° 25'W.	1	yes	
942	Apr. 30, 1961	Robert and Earl Brewster	Riviera Beach, Florida, 26° 46'N. 80° 6'W.	1	no	
1000	Aug. 26, 1913	Woman	Spring Lake Beach, New Jersey, 40° 9'N. 74° 2'W.	1	?	

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	No. OF PEOPLE		FATAL
				NORTH AMERICA, WEST COAST	NORTH AMERICA, EAST COAST	
416	June 27, 1959	Ramon Briseno Ocarra	San Pedro Channel, California, 33° 30'N. 118° 30'W.	1	no	
417	1955	Claude Otto Jahn	Limatour Bay, South of Dillon Beach, California, 38° 20'N. 123° W.	1	yes	
437	Aug. 5, 1959	Charles H. Hill	Hermosa Beach, Los Angeles, 34°N. 118° 15'W.	1	no	
442	Aug. 13, 1959	Done Ide	San Diego, California, 32° 45'N. 117° 11'W.	1	no	

482	Aug. 26, 1959	Capt. Stuart Evans	Between Santa Catalina Island and San Diego, 33° 30'N. 118°W.	1	no
679	Aug. 1953	Arthur R. Satz	Pie de la Cuesta, Acapulco, Mexico, 16° 51'N. 99° 56'W.	1	no
750	Jan. 25, 1952	Gosta Videgaard	Paitilla Point, Panama, 8° 58'N. 79° 32'W.	1	yes
923	Sept. 26, 1961	Paul Walter	Zuma Beach, County Park near Malibu, 34° 1'N. 118° 51'W	1	no
1053	June 19, 1962	Robert Panis	Half Moon Bay (off the foot of Poplar Ave.), California, 37° 28'N. 122° 25'W.	1	yes

CASE NO.	DATE	NAME OF VICTIM	LOCALITY	PACIFIC OCEAN	NO. OF PEOPLE	FATAL
415	July 11, 1951	Ted Siersk	860 miles northeast of Honolulu, about 27°N. 147°W.	1	no	
456	Aug. 25, 1959	Masami Fukushi	Off Hokaido, Okuijiri Island, (probably Okushirii) Japan, 42° 15'N. 139° 33'E.	1	no	
736	June 25, 1951	Woman drowned	Hilo, Hawaii, 19° 42'N. 155° 4'W.	1	yes	
813	Dec. 27, 1960	Harold Riley, drowned	Maile Point, Oahu, Hawaii, 21° 27'N. 158° 11'E.	1	yes	
816	June 1926	William J. Goins, drowned	Haleiwa to Kahuku, Honolulu, 21° 36'N. 158° 7'W.	1	yes	
980	Aug. 1931	Head of George Gasper in shark stomach	Off Oahu I., Hawaii, 21° 19'N. 157° 50'W.	1	yes	

GENERAL INDEX

- Abbreviations, of laboratories and aquariums, 117; of parts of central nervous system, 227-230
- Accessory population, 97-100; bull sharks, 110; dusky sharks, 112; feeding habits of, 107; great hammerheads, 111; injury to, 99, 100; lemon sharks, 111; three characteristics of, 98; tiger sharks, 104; Vitamin A in, 99
- Accommodation, negative and positive, 289
- Acoustic mechanism, 185, 225; impulses, 195; lobe, 225; stimulation, 187; tubercles, 184, 185, 225
- Acoustico-lateralis system, 190, 191, 195, 248, 253; area, 192; associations, 199; derivatives, 194; lemniscus, 185, 201; lobes, 188, 189; nuclei, 184, 185; stimuli, 188
- African catfish, 185
- AIBS Shark Research Panel, 501, 505-507, 509
- Algae growth, 126
- Amphibians, 214, 224, 322
- Ampullae of Lorenzini, 195, 243, 248-250, 252, 274
- Anadromous fish, 323
- Anesthesia, "MS-222," 121, 131; pens for administration of, 320; sharks under, 160, 161, 299, 317, 318-319
- Angel shark, 58, 59, 63, 330, 342; in captivity, 116, 119, 133; gustation of, 274; olfaction of, 256; Pacific, 77
- Angler fish, 174, 176, 183
- Anti-shark measures, bubble curtain, 472-474, 493; electrical devices, 468-469, 476, 493; fence, 469-471; ineffective, 469, 472; kinds of, 468-473; more effective, 475; reasons for, 465-468; research into, 368, 370-385; shark meshing, 473-475
- Aqualung, 334
- Aquariums, 115, 117, 152, 206; public, 122, 126, 130, 133, 472. *See also* Captivity, sharks in, Enclosures, Feeding in captivity, Laboratory facilities
- Area centralis, 314, 386
- Attacks, by location, Africa, 332, 363-368, 393, 418, 429, 510-513, 545, 550, 556, 563; Asia, 513-515, 556, 563; Atlantic Ocean, 515-517, 545-546, 550-551, 557-558, 564; Australia, 330-335, 343, 366, 389-407, 419, 428, 517-528, 546-547, 551-553, 559, 564-565; Europe, 547, 553; Indian Ocean, 528-529, 556, 559; Mediterranean, 529, 559; New Zealand, 332, 335; North America, East Coast, 399, 420, 430, 530-534, 547-548, 554-555, 560, 566; North America, West Coast, 421, 535-536, 548-549, 555, 560, 566-567; northern seasonal zone, 409, 414-417; open ocean, 370-385; Pacific Ocean, 537-544, 549, 555, 561-562, 567; South America, Atlantic Coast, 544; southern seasonal zone, 408, 409, 417-419; tropical waters, 412-414; Western Atlantic, 339-360; world, 404-412, 428, 431. *See also* Smithsonian Institution
- Attacks, by species, angel shark, 59; basking shark, 18; blacktip reef shark, 35; black whaler shark, 45; blue shark, 29, 76; blue whaler, 29; bronze whaler, 41; bull shark, 37; dogshark, 49; dusky shark, 47; *Eucrossorhinus dasypogon*, 54; gray reef shark, 40; gray shark, 32; great blue shark, 29; hammerheads, 19; lemon shark, 26; leopard shark, 50; mako shark, 17; northern whaler, 45; nurse shark, 56; sand shark, 52; shovelnose guitarfish, 77; small blacktip shark, 38; spinner shark, 39; thresher shark, 24; tiger shark, 27; white shark, 13; whitetip shark, 42; wobbegong, 53
- Attacks, on boats, 13-14, 430, 442-443, 550-556; depth of water during, 392, 437; distance from shore during, 394, 436-437; fatality rate of, 495, 500; following air and sea disasters, 556-562; on individuals going to aid, 439-440, 495; kinds of, 430-431; latitudes and longitudes of, 402-405, 420-421, 427, 428, 429, 430; months of, 393, 395, 402, 406-407, 420-421, 432; physical factors regarding, 440-441; precautions against, 333-334, 498, 500, 501-503; on raft, 509, 554, 555, 556; sites of, 391; temperature during, 331-332, 333, 359, 392, 432, 434, 435; time of, 330, 334, 359, 374, 396, 432, 433, 434; times bitten in, 442; treatment of, 495-500; victims' activities before, 438; victims' locations during, 439
- Audiogram, 251
- Auditory system, 198-199, 240
- Australian gray nurse shark, 124, 128
- Axons, 173, 176, 187, 188
- Bait, control and repellent, 486-488, 491, 492; kinds of, 68, 70, 72, 73, 80, 87-88, 90, 109, 111, 112, 123, 124, 276, 456, 458, 459, 461, 480, 484; passes at, 264, 481, 482; protection of, 485-487; setting out, 107-108, 123, 156-157, 478-479, 483, 486-488, 491; shark as, 336; unsuccessful, 87, 88, 106, 108
- Bank loafers, 98, 99, 110
- Barbels, 122, 129, 137, 140, 147, 272, 273, 357; of carp, 225; lack of, 49, 55; on nostrils, 256, 258; taste buds covered by, 181
- Barracuda, 133, 223, 339-341, 360, 415, 441
- Bartgrundel, 273
- Basking shark, 18, 52, 70, 257, 259, 284, 314, 329, 342
- Bass, 78; Channel, 112; White sea, 77
- Bay shark, 46, 47, 73-74
- Behavior, 84, 106, 255, 280, 419; of forebrainless species, 220-222; neuroanatomical, 165-166, 226; patterns of, 222, 224, 225; schooling, 240. *See also* Feeding in captivity, and Sexual behavior
- Behavioral activities of teleosts, 213
- Behavioral differences, 223
- Behavioral experiments, 132, 165, 166, 207, 477-494; or bony fishes, 147; data of on brain, 225; demonstration of blindness by, 207. *See also* Conditioning, and Experiments
- Bell-ringing, instrumental conditioning through, 124, 134, 135, 136, 142, 143; summary, 137, 138-139, 140-145
- Bigeye thresher shark, 105, 290
- Bignose shark, 44
- Bioassay, 492
- Birth, giving, 7, 86; by bull shark, 109-110; in

- captivity, 121, 128, 130, 146; by lake shark, 100; by large sharks, 103; by lemon shark, 121, 130; in shark channel, 128; by spinner, 110
 Bites, treatment of, 495–500; 502
 Blacknose shark, 120, 461, 487
 Blacktip ground shark, 456, 484
 Blacktip reef shark, 35, 40
 Blacktip shark, 38, 39, 75, 76, 86–90, 109; in captivity, 116, 119, 131; feeding habits of, 110, 111, 458, 461; gustation of, 276; olfactory apparatus of, 261, 262, 264, 265, 266–270; repellent tests on, 486–487; visual apparatus of, 303, 321
 Black whaler, 45
 Blasting, 83, 84
 Bleak, 183, 185
 Blindness, 205, 207; color, 342; temporary, 161, 317, 318
 Bluefish, 112
 Blue pointer, 17, 330, 337
 Blue shark, 63, 76, 298, 329, 336, 349, 351, 443, 468
 Blue whaler, 28
 Bonito, 17, 108
 Bonnethead shark, 116, 119, 133, 347
 Bony fishes, area centralis and fovea in, 314; brain of, 223, 224; cerebellar function in, 198; experiments on, 252; feeding on, 87, 123; feeding patterns of, 224; forebrain of, 216, 219; hearing of, 247, 248, 251; medulla in, 176, 180, 189; nucleus lateralis valvulae in, 205; tectum of, 206, 224; tracts in, 195
 Brain, 165–166, 167, 169, 171, 175, 182, 193, 292; behavioral data on, 225; differences between elasmobranchs and teleosts, 222–226; injury, 197, 220–221, 279; of mako, 293; size of, 223. *See also* Cerebellum, Diencephalon, Forebrain, Medulla oblongata, Mesencephalon, and Telencephalon
 Breeding, 146, 323, 357, 492
 Brill, 185
 Broad-snouted seven-gilled shark, 58
 Bronze whaler, 40, 41
 Brook trout, 192
 Brown shark, 119, 359
 Brown smoothhound, 119
 Bubble curtains, 472–473, 493
 Bubbles, divers' air, 75, 82, 83, 93, 502
 Bubbles from regulator, 82
 Buds, terminal, 272–274. *See also* Taste buds
 Buffalo fish, 182
 Bull shark, 36, 37, 100, 103, 105, 223, 337, 351–352, 354; audiogram for, 251; birth by, 109–110; in captivity, 119, 482; feeding habits of, 108, 109–110; of Lake Isabel, 101; olfaction of, 268
 Burning out, 105
 By-products, 336–337, 339. *See also* Livers
 Cabezon, 68–69
 Cages, divers', 81, 82, 84, 280; shark, 80, 81, 84, 90–91; wire, 478–479
 Calcareous growth, 79
 Calcareous shells, 108
 Calcification, 123
 California dogfish, 119
 Captivity, sharks in, 115–116, 117–119, 127–133; birth in, 121, 128, 130, 146; care of, 121–133; eggs of, 127, 128, 129; injury to, 115, 120, 127, 130, 478; instrumental conditioning of, 133–147; obtaining, 116, 120–121; testing repellents on, 477–483
 Carcharhinids, 99, 261, 274, 294, 297, 298, 306, 356, 443
 Carp, 181, 182, 203, 217, 224–225, 239, 280
 Carpet shark, 53, 118, 119, 330, 333
 Catadromous fish, 323
 Catches, bank loafer, 98, 99; best, 98, 104, 105; marginal, 98; normal, 96; record of, 95; rogue, 99; small, 97
 Catching sharks, methods of, 87–89, 90, 107; on chain, 105; through gateway, 120, 126; graballs, 338; by gun, 89, 416; by hand, 357; haulbacks, 111; hook and line, 72, 89, 97, 107–108, 130, 133, 349, 456, 477, 478; hooking, 73, 76, 80, 88–89, 107–108; hooks and groundline, 98, 120; lines, hand, 338; lines, long, 95, 99, 105–106, 107–108, 112, 338; lines, lost, 105–106; lines, set, 112, 120, 475, 483; lines, side, 120; live car, 120–121, 133, 477; nets, 64, 66, 130, 342, 352, 368, 416, 478; nets, dip, 83, 132; nets, gill, 95, 103, 112, 473–474; nets, hand, 116; nets, meshing, 338; nets, stop, 116, 120; by spear, 70, 82, 342, 357–358, 359; by speargun, 345, 358; steel meshes, 416, 475–476; by tail, 116, 120; traps, 64, 66, 130, 478; trawls, 338; unsuccessful, 120. *See also* Bait
 Catfish, 181, 203, 263, 273; African, 185; river, 197
 Catshark, 118, 129, 244, 256, 257, 259, 266, 329; spotted, 118
 Cerebellum, cerebelli, 170, 172, 190–199; connection of with other areas, 195, 199; corpus, 193, 190; of dogfish, 190; efferent tracts of, 191, 194; in elasmobranchs, 190–191, 192, 194–199, 224; experiments on, 196–199; fiber tracts to, 191, 194–195, 205; in fishes, 194, 198–199, 223; of four sharks, 196; injury to, 197; nuclei of, 174; of nurse shark, 198; Purkinje layer of, 191, 192, 194; size of, 223; in teleosts, 191–199, 224; valvula, 193, 195–196, 197, 206
 Cero mackerel, 341
 Channel bass, 112
 Choroid, 285–286, 301–304, 311. *See also* Tapetum, and Tapetal plates
 Chottos, 101
 Chumming, 107, 109, 457, 461, 486, 487, 488. *See also* Bait
 Ciliary body, 306
 Circulation, in cement enclosures, 129; over gills, 121; in pond, 156–157
 Codfish, 189, 195, 212, 213
 Color, attraction of, 89, 93, 440, 441; blindness, 342; bodily changes in, 205; depth of, 490; discrimination, 89, 220, 221, 320; patterns, 342; receptors for, 286; test, 320, 321; unimportance of in food, 75, 83
 Common chemical sense, 106, 255, 262, 277–279
 Conchs, 108–109
 Conditioning, instrumental, bell-ringing in, 124, 134–145; experiments, 124, 125, 131, 134–137, period, 137, 147; responses, 142, 144; target used in, 134–137, 221
 Control program, 334
 Copper acetate, 356, 373, 456, 457–459, 461, 462, 479, 483, 484, 485, 486–487, 490, 492

- Copper salts, 479
 Copper sulfate, 456, 457, 484
 Copper-treated water, 124, 126, 128, 130, 278
 Corneal, 285, 286, 290, 291, 294, 298, 300-301, 306, 308, 316
 Cow shark, 57, 105
 Crabs, 87, 109, 130, 298
 Cub shark, 353
 Cunner, 176
 Currents, 105, 107, 122, 264; blood carried by, 360; map showing, 410-411; warm, 364
 Cyprinids, 181
- Damselfish, 82
 Dark adaptation, 239, 303, 304, 313
 Diencephalon, 173, 207-213; connection of with cerebellum, 195; in elasmobranchs, 207-208, 211, 213; fibers in, 205; hypothalamus of, 211; inferior lobes of, 211; in mammals, 212, 213; of ocean sunfish, 210; regions (four) of, 207-208; of soldier fish, 209; tectum of, 173, 209; in teleosts, 208-211, 213; visual centers, 240
- Divers, advice from, 501; with Pacific angel shark, 77; with Pacific electric ray, 78; swimfins of, 64, 70, 75, 92; with thresher shark, 64; with white shark, 69
- Divers, SCUBA, in cages, 81, 82, 84; off Cape Verde Islands, 356; at Clipperton Island, 80, 81, 82, 84; off Farallon Islands, 68; gear for, 280; at Sebastian Viscaino Bay, 79; when wearing SCUBA, 502
- Divers, skin, and blue shark, 76; and horn shark, 64; and leopard shark, 73; and nurse shark, 358; in school of porpoises, 76; and white shark, 68
- Doctor fish, 192, 193
- Dogfish, 118, 119, 133, 180, 190, 239, 261, 262, 263, 264, 268, 272, 276; California, 119; green, 290; marbled, 118; mesencephalon of, 239; spotted, 118, 284, 298
- Dogfish, smooth, 129-130, 284, 342; in captivity, 119, 316-317; common chemical sense in, 277; eye of, 290, 291, 296, 303; hearing of, 247, 248, 250-251; lamellae of, 261, 263; medulla oblongata of, 178; nostrils of, 257, 259; smell, sense of in, 266, 269; spinal cord of, 172; taste, sense of in, 275; tests of repellents on, 277-279, 483, 493
- Dogfish, spiny, 96, 284, 468; Ampullae of Lorenzini of, 249; in captivity, 119; damage by, 466, 467; eye of, 290, 291; forebrain of, 214; hearing of, 252; lamellae of, 261, 263; mesencephalon of, 200; nostrils of, 257, 259; olfactory sacs of, 260; taste buds of, 271, 272
- Dogshark, 49, 119, 266, 330, 455, 456
- Dolphin, 108, 129
- Dusky shark, 46, 47, 105, 112, 119, 353-354, 482
- Dynamometer tests, 99
- Dyes (in repellents), 459, 461, 462, 469, 485, 489; Calco WBSR, 459, 461, 487-490; 20% copper acetate in, 490; marker from, 377, 378, 381, 457, 459-461; Methic Leather Black D.G., 492; Sea Marker, 455; Type A (black magic) tablets, 492; Type B (copper acetate) tablets, 492
- EEG, 189, 211, 219
- Fel, 185, 187, 189, 221, 322; Moray, 89
- Eggs, binding, 128; in captivity, 127, 129; cases, 7, 64, 71, 72; of fish, 323; unfertilized, 128
- Electric shock, 78
- Electrical devices, 468-469, 476, 493
- Electrocardiogram, 162
- Enclosures, 116, 122-124, 126, 127, 129; shark-proof, 334, 416, 482. *See also* Aquariums, Oceanarium, Pens, Ponds, Pools, Shark channel, Tanks, and Washtub
- Endrin, 91, 92
- Epithalamus, 169, 207, 208, 211, 212, 216, 219, 220
- Experiments, anatomical, 133; behavioral, 132, 165, 166, 207, 253, 477-494; on bony fishes, 252; on cerebellum, 196-199; with colors, 320, 321; conditioning, 124, 125, 131, 134-137; conditions during, 125, 147; on diencephalon, 212-213; electrophysiological, 244, 248; equipment for, 280; on eye, 244; on forebrain, 213, 220-222; with living animals, 250-251; on medulla oblongata, 189, 197, 213; on mesencephalon, 205-207, 212, 213, 239; with odors, 266-268; physiological, 166; set line used in 483; substitute for, 166. *See also* Conditioning, and Tests
- Explosions under water, 370, 384
- Extracts, that attract, 246; that repel, 268, 479, 483, 483
- Eye, human, 284-289; cornea and lids of, 294
- Eye, shark's, 6, 21, 290-316, 321, 322-323; chambers of, 316; ciliary muscles of, 169; extrinsic ocular muscles of, 291, 292, 293, 321; of great white shark, 290, 292; of hammerhead, 296; interior of, 305; of lemon shark, 297, 298, 301, 303, 310, 318-319, 320; of mako, 290, 293, 306; muscles, 167, 169, 183, 284, 286, 288; of nurse shark, 302, 303; occlusors on, 161, 319, 320; optic nerves of, 272, 286, 301, 317; optic pedicel of, 291; removal, 205; size and shape of, 105, 131, 226, 290, 307; stimulation of, 240; structure, 322; of tiger shark, 105, 131, 290, 299, 300, 303; of whitetip shark, 303, 304
- Eye of teleost, 307, 322-323
- Feeding in captivity, 122, 123, 127-135, 137; on barracuda, 133; behavioral studies on, 121-133, 220, 240, 477-483; bell-ringing while, 134-143; on blue runner, 123, 130, 131, 133; on bonito, 480, 482; on bony fish, 123; on butterfish, 130; conditioning experiments while, 125, 133-147, 221, 455, 472; on cut fish, 127, 131, 268; on fish meal, 123; force-, 123, 127, 129; on herring, 123, 128, 129; on invertebrates, 123, 127, 129, 130, 276; on jack, 123, 132; on mackerel, 128, 130, 478-480, 482; on meat, 123, 132; on mullet, 123, 130, 131, 135, 270; on plankton bloom, 126; on porcupine fish, 299; on ray, 123; on shark flesh, 123, 128, 130, 131, 132; starvation while, 128, 133, 267; on tarpon, 122, 134, 137
- Feeding frenzy, 255, 268, 269, 494
- Feeding habits, 100, 107, 225, 330, 489
- Feeding inhibitor, 278, 482, 483
- Feeding platform, 115, 122, 134, 135
- Feeding on shark by fish, 80
- Fleming Pack, 497, 498
- Fibers, 174, 175, 176, 177, 181, 188, 190, 239; ascending, 184-185; descending, 185; gustatory,

- 167, 177, 272, 280; lateral-line nerve, 246, 247, 250; in medulla oblongata, 183; in mesencephalon, 172, 177, 183, 201; olfactory, 216, 217-219, 280; optic, 205, 208; radial, 308; retinal nerve, 286; root, 179, 191, 194; somatic, 174; spinal cord, 181, 187; from taste buds, 225; tectal, 201, 202; visceral, 177, 181. *See also Tracts*
- Fins, 5, 6; caudal, 5, 6, 85; dorsal, 181; for export, 336; hooked, 107; pectoral, 174, 181, 183; of rays, 174; swim, of divers, 64, 70, 75, 92; ventral, 181
- First aid, 495-498, 500, 502; treatment following, 498-500
- Fisheries, 465, 467; in Australia, 336-338; commercial, 467-468, 475; in Peru, 467; shrimp, 467
- Fishermen, best, 90, 105, 469; tuna, 93, 466
- Fishing tests, *see Tests*
- Flake, 337
- Flatfish, 185, 322
- Food, shark as, 140, 141, 143, 144, 337
- Forebrain, 212-222, 239, 280; of *Amia*, 214; amphibian, 214, 221; areas, 169, 216, 217, 218, 219; of birds, 221; of bony fishes, 216, 219; corpus cerebelli extending over, 193; divisions (regions) of, 215-216, 217; in elasmobranchs, 215-216, 220, 222, 224; electrodes on, 213; to epithalamus, 169, 216, 219, 220; experiments on, 213, 220-222; of ganoid, 214; to hypothalamus, 169, 216, 217, 219, 220; nuclei, 219, 239; primitive, 222; in rays, 215; relation of to thalamus, 219; removal of, 206, 220-221, 239-240; in *Scyllium*, 215; size of, 223; telencephalon, medium part of, 216; in teleosts, 215-219, 220, 222, 224, 240; terminology of, 215; tracts from, 208, 240; valvula over, 191; of *Xiphophorus maculatus*, 218. *See also Olfactory apparatus*
- Galapagos shark, 46, 74; at Clipperton Island, 74, 80-93; histogram of, 85; length-frequency diagram of, 86; survival time of after toxins, 91; unaffected by rotenone, 82, 83, 91
- Ganoid, 214
- Gestation, 76, 131, 146
- Gills, 121, 126, 169; openings, 6, 105
- Goldfish, 189, 197, 202, 213, 220, 221, 239, 240
- Gravid sharks, 110; non-, 99, 100; post-, 106
- Gray nurse shark, 50, 118, 128, 329, 330, 337, 356, 397
- Gray reef shark, 40
- Gray shark, 24, 29, 32, 278-279, 356, 432, 443; olfaction of, 257, 264, 266-270
- Gray smoothhound shark, 68, 73, 118
- Great blue shark, 28, 29, 170, 284
- Great hammerhead shark, 19, 20, 111, 347-348
- Great white shark, 13, 15, 63, 64, 65, 335, 415-416, 432; brain of, 292; eyes of, 290, 291, 292; nostrils of, 259
- Green dogfish, 290
- Greenland shark, 59, 257, 259
- Ground shark, 456, 484
- Grouper, 82, 88, 108, 359, 384
- Guitarfish, shovelnose, 77
- Gummy, 329, 337
- Guppy, 239
- Gurnards, 174
- Gurry shark, 59
- Gustation, 106, 255, 270-277; of angel shark, 274; of blacktip shark, 276; of nurse shark, 275
- Gustatory apparatus, centers, 169; components, 177, 180; connections, 195; fibers, 167, 177, 272, 280; function of, 194, 274; impulses of, 174, 181; nerves, 188; organs, 279; paths, 186; as peripheral system, 280; response of, 273; sensations of, 183, 211, 275; stimuli to, 199; tract, 176, 181, 183
- Hammerhead sharks, 19, 86, 93, 99, 111, 216, 329, 330, 337, 347-349, 364, 397, 443, 456, 458; in captivity, 115, 116, 119, 132-133; eye of, 296, 297; Great, 19, 20, 111, 347-348; olfaction of, 256, 258, 261, 262, 264, 267; repellent tests on, 484, 486; Scalloped, 20; small and large, 76, 486; Smooth, 20, 22, 23, 77, 111
- Harmless sharks, 115
- Head, 5, 6
- Hearing, sense of, 243-253; in bony fishes, 247, 248, 251; central acoustic area and lobe related to, 183; in elasmobranchs, 243-244; in killifish, 250; in rays, 244, 245; in smooth dogfish, 251
- Hearing spectrum, 252, 253
- Herrings, 184, 185
- Hides, 112
- Hoist, 152, 159, 160
- Hooking, *see Catching*
- Horn shark, 63-64
- Horned shark, 118, 119, 127
- Horned sharks (unidentified), 80, 116, 127
- Hose, perforated, 156-157
- Houndshark, 50
- Hunting turn, 478
- Hypothalamus, 169, 181, 185, 194, 195, 207, 208, 209, 211, 216, 217, 219, 220, 222
- Identification guide, 3, 6, 329-330
- Impulses, acoustic, 195; cutaneous, 181; exteroceptive, 212; hypothalamic, 195; lateral line, 195; pain, 178; tactile, 178, 191, 195; visual, 195, 209
- Inhibition, 212, 222, 226, 239, 277, 278; feeding, 106, 110, 482, 483
- Injury, to accessory population, 99, 100; from Australian sharks, 330; brain, 197, 220-221, 239, 279; during captivity, 115, 120, 127, 130, 478; protection from, 300
- Inkytails, 491
- Intermediate zone, 169-170, 172, 186
- Iris, 286, 288, 308, 310, 311, 316, 321
- Jack, following sharks, 75, 82, 87; starry, 87
- Jewfish, 130
- Juices, 76, 105, 107, 144, 146, 266, 268, 270, 273; digestive, 132
- Killifish, 250
- Kingfish, 192
- Knopp's shark, 44
- Knoxfish, 91
- Laboratory facilities, 116, 117, 151, 153-162; Cape Haze Marine Laboratory, 151, 153, 154, 155; Cornell University, 151; Unimotok Marine Biological Laboratory, 155; University of Hawaii, 151, 156, 157; Terner Marine Laboratory,

- 151, 158; Oceanographic Institute at Durban, 151, 152, 153
Labyrinth, 244, 245, 246, 252
Lake shark, 100
Lamellae, 262, 278; olfactory, 256; Schneiderian folds, 261; of smooth dogfish, 261, 263; of spiny dogfish, 261, 263
Large blacktip shark, 38, 39, 352–353, 354
Large sharks, along Florida shoreline, 97; of accessory populations, 99; by-products of, 337; in captivity, 127, 134; damage by, 466; feeding habits of, 107, 123, 128; migration of, 103–104; muscles of, 194; species of, 101
Lateralis endings, 248
Lateral line system, 185, 188, 244–248, 250, 251, 252, 272, 359; acoustico, 167; impulses, 195; nerve fibers, 246, 247, 250; nerves, 179, 183, 188, 189, 194, 195; stimuli, 225
Lemon shark, 24, 25, 26, 76, 105, 111, 223, 349–351; anesthetized, 161, 318–319; bell-ringing by, 135, 136, 138, 140–145; in captivity, 116, 119, 121–122, 130–131, 134, 145, 146; electrocardiogram of, 162; eye of, 297, 298, 301, 303, 310, 318–319, 320; feeding habits of, 110, 111, 121–124, 125, 134–147, 319, 458; olfaction in, 251, 262, 265, 267, 268; teeth of, 350; tests of repellents on, 482, 486
Lens, of elasmobranchs, 308, 314, 316; human, 285, 286, 288, 289, 290; of mammals, 290; muscle, 321; spherical, 290, 321
Leopard shark, 49, 68, 72, 73, 80, 93, 351; in captivity, 116, 118, 129–130
Lids, 291–298, skin of, 301. *See also* Nictitans
Lifting, 120; hoist for, 152, 159, 160
Light, adaptation, 239, 303, 304, 308, 309, 311, 313; conditioning to, 197; dislike of, 109; rays, 285, 286, 290; regulation of, 288; repellent properties of, 105; responsiveness to after lobe removal, 205; sensitivity to, 212, 286, 298, 300, 317; stimuli, 205, 207, 208, 240
Lines, *see* Catching
Live car, *see* Catching
Livers, 95–96, 100, 107, 336, 339; of dusky shark, 112; of hammerheads, 111; of lemon shark, 111; of school shark, 338; of small sharks, 335
Living prey, response to, 268–270
Lobes, 188–189, 224–225; acoustico-lateral, 188, 189; caudal, 355; central acoustic (N. VIII), 183, 184, 188, 225; division of, 192; experiments on, 239; facial (N. VII), 181, 182, 183, 188–189, 224–225; of hypothalamus, 181, 194; inferior, 194; of nostril, 256; olfactory, 215, 217, 262; optic, 199–206, 225, 226; posterior lateral line, 195; sensory enlargements (twelve), 174; somatic sensory (N. V), 183, 188, 225; vagal (N. IX and N. X), 181, 182, 183, 188, 224–225. *See also* Nerves
Lung fish, 187
Mackerel, Cero, 341; as food, 68, 128, 130, 478–480, 482; Pacific, 68; shark, 12, 14, 257, 314, 350; sharpnosed shark, 17, 344
Mako shark, 12, 16, 17, 73, 100, 223, 284, 332, 344–345, 350, 397, 443; cerebellum of, 198; eye of, 290, 291, 293, 306
Mammals, arousal patterns of, 239; cerebellar connections in, 198; cerebral cortex in, 207; eye of, 290; forebrain in, 216, 221, 222; limbic system in, 222; nervous systems of, 239; pallium of, 216
Man-eaters, 13, 64, 65, 67, 335, 336, 337, 355, 359, 415, 491, 492. *See also* Great white shark, and White shark
Maps, Africa, 366, 418, 429; Australia, 333, 397, 398, 400, 405, 428; currents, 413; North and Central America, 430; United States of America, 416; world, 408, 410–411, 428
Marbled dogfish, 118
Marine fish, 278
Marking, 89
Mastication, 169, 183
Mauthner's apparatus, 184, 185, 186, 187, 188, 189
Measurement guide, 4
Medulia oblongata, 168, 169, 172, 173, 174, 177–189, 190, 191, 192, 205, 212–213; in bony fishes, 176, 180, 189; in elasmobranchs, 177–180, 188; experiments on, 189, 197, 213; fibers in, 183; of guppy, 239; inferior olive tract of, 176; intermediate zone of, 172, 186; lobes of, 188–189, 224–225; nuclei of, 207; roots of, 177–179; sensory and motor columns (four) of, 177; of smooth dogfish, 178; in teleosts, 180–188; tracts to and from the, 190–191, 194, 201
Megrim, 185
Mesencephalon (midbrain), 169, 171, 183, 199–207, 212, 213; connection of with cerebellum, 195; corpus cerebelli extending over, 193; of dogfish, 239; in elasmobranchs, 199–201, 204, 205, 207; electrode tests on, 212–213; experiments on, 205–207, 212, 213, 239; fibers in, 172, 177, 183, 201; injury to, 197, 205–206; of perch, 202; of spiny dogfish, 200; tectum of, 199–206; tegmentum of, 199, 201, 204–205; in teleosts, 201–204, 205, 206, 207; tracts to and from, 174, 194, 240; valvula over, 191
Migration, 103–104, 110, 334–335
Minnow, 203, 220, 275–276, 370, 376
Mormyrids, 185, 195, 198, 203
Mormyromasts, 195
Movement in water, 349, 359–360, 376, 378, 379, 380, 382, 383; hand, response of sharks to, 74, 75, 82, 83; from slapping, 122, 144
Movie recording, 481, 482
Mullet, 206; Indian, 225
Muscle, 177, 178, 194, 206; extrinsic ocular, 291, 292, 293, 321; eye, 169, 183, 284, 286, 288; I.p.n. and related, 297, 300; rectus, 300; tone, 244
Nerves, cervical, 174, 175
Nerves, cranial, 167, 169, 177, 188; abducent (N. VI), 167, 180, 185, 186, 199, 291; acoustic (N. VIII), 167, 177, 179, 184, 185, 187, 188; facial (N. VII), 167, 169, 173, 177, 179, 180, 186, 224, 272, 273, 274, 277; glossopharyngeal (N. IX), 167, 169, 177, 179, 180, 181, 186, 272, 274, 277; oculomotor (N. III), 167, 169, 185, 199, 291, 311; olfactory (N. I), 169, 217, 262, 272; optic (N. II), 167, 201, 272, 286, 301, 317; trigeminal (N. V), 167, 169, 173, 177–179, 180, 181, 183, 186, 199, 201, 202, 262, 277; trochlear (N. IV), 167, 185, 199, 291; vagus (N. X), 167, 169, 177, 179, 180, 181, 183, 186, 272, 274, 277

- Nerves, dorsal, 172
 Nerves, lateral line, 183, 184, 188, 189, 194, 277; anterior, 179, 195; posterior, 179, 195
 Nerves, ophthalmic, 180
 Nerves, sensory, 172
 Nerves, spinal, 186
 Nervous system, 167–171; somatic motor division of, 167; somatic sensory division of, 167; visceral motor division of, 169–171; visceral sensory division of, 167–169
 Nets, *see* Catching
 Nictitans, 291, 295, 296, 297–299, 300; of *Galeorhinus japonicus*, 24; sharks without, 49, 50; of *Sphyraena lewini*, 21; of *Trienodon*, 50
 Nictitating membrane. *See* Nictitans
 Night shark, 105, 119
 Nomenclature, 101
 Northern whaler, 45
 Nostrils, 255–260, 261, 279; barbels on, 256, 259; of catshark, 255, 256; clogging of, 126; of great white shark, 259; occlusion of, 263, 264; of sand shark, 263; of smooth dogfish, 257, 259; of spiny dogfish, 257, 259; of thresher shark, 259
 Nuclear complex, 208–209
 Nucleus, Deiter's, 179, 183, 184; of Rolando, 181–183
 Nurse shark, 53, 55, 56, 57, 70, 329, 342, 354, 356–359; bell-ringing by, 139, 140; in captivity, 115–116, 118, 120, 122, 123, 128–129, 134; cerebellum of, 198; eye of, 302, 303; feeding habits of, 112, 122, 124, 125, 129, 134, 137, 139, 140–147, 483; Gray, 50, 118, 128, 329, 330, 337, 356, 397; gustation of, 275; in hiding, 71; migration of, 103, 104; olfaction of, 256, 258, 262, 265; in Red Sea, 129; repellent tests on, 482, 487, 493; shallow-water dwelling, 71, 112, 116, 357, 492; sound experiments with, 251
 Nursery area, 106, 110, 111
 Observation platform, 160, 482
 Ocean sun fish, 174, 210
 Oceanarium, 122, 126, 130, 153
 Odors, 87, 88, 92, 122, 266–268, 269; of *Mus-telidae* family, 69
 Oil shark, 27
 Olfaction, 255–270, 279, 320; of angel shark, 256; of bull shark, 268; as diffuse, 222; and feeding behavior, 220, 225; of gray shark, 257, 264, 266–270; of hammerheads, 256, 258, 261, 262, 267; of lemon shark, 251, 262, 265, 268; of nurse shark, 256, 258, 262, 265; perception of humans by, 359; in sharks and rays, 226; of smooth dogfish, 269; and taste, 222; in teleosts, 220; of tiger shark, 259, 260, 261, 262, 267, 268, 276
 Olfactory apparatus, 169, 214–222, 265, 280; areas, 169, 215, 216, 217, 218, 219, 225; associations with, 199, 223; of blacktip shark, 261, 262, 264, 265, 266–270; bulbs, 203, 211, 213, 214, 215, 216, 217, 221, 225, 240, 261–262; capsules, 262; centers, 226; connections, 195; corridor, 264, 270; crura, 217, 280; cues, 122, 133, 144; discriminations, 222; domination of, 219; fibers, 216, 217–219, 280; lobe, 215, 217, 262; nerves, 169, 217, 262, 272; (N. 1), 169; nuclei, 215, 219; olfactory routes, 221; organs, 255, 263; perception by, 278; response of, 280; sacs, 256, 260, 261, 262, 320; sensations of, 211, 275, 462, 478, 489; stalks, 213, 215, 216; in studies, 155; terminology of, 215; tracts, 176, 216, 217, 219, 262, 277, 280; trail, 264; tubercle, 215, 216. *See also* Forebrain
 Olfactory sense, 279, 456, 457, 469
 Optic pedicel, 291
 Orectolobids, 55
 Otter, sea, 68, 69, 466, 467
 Oxygen supply, 104, 105
 Pacific angel shark, 77
 Pacific electric ray, 78
 Pelagic species, 28, 68, 126; coastal, 76; fish, 345; sharks, 224, 279, 280, 321, 349
 Pens, 115, 116, 120, 121, 123, 124, 126, 130, 131, 134, 135, 151–162, 472–473, 482, 483; aerial view of, 153–155, 158; holding, 158; observation, 158; operating, 159–160, 320
 Perch, 202
 Perlon, 58
 Pilings, 134, 145; cement, 126; pressure-treated, 158; wooden, 126
 Pilot fish, 70, 87
 Pineal organ, 205, 207, 208
 Pit organ, 275, 280
 Plaice, 195
 Plankton, 18, 52, 70, 126
 Platform, feeding, 115, 122, 134, 135; observation, 160, 482
 Platypfish, 217, 220
 Pleuronectids, 203
 Pointer, 329
 Ponds, 130, 132, 156, 157
 Pools, circular, 162; concrete, 161; plastic wading, 132
 Porbeagle, 14, 284, 290, 344, 350
 Porpoises, 76, 108, 109, 112, 123, 252
 Port Jackson shark, 329
 Priest shark, 119
 Principal population, 97–100; of dusky sharks, 112; of white sharks, 99
 Pseudo-campanule, 305–308, 321
 Puffer, 176
 Pupil, 286, 288, 290, 308–309, 310, 311, 313
 Queensland shark, 331
 Rachis, 261, 262
 Rainbow runners, 75, 82, 87
 Rainbow trout, 203
 Rays, 74, 225–226, 274; brain of, 223; in captivity, 115; catch of, 467, experiments on, 197, 206; eye of, 304, 310, 312, 317, 321; forebrain of, 215; hearing of, 244, 245; medulla oblongata of, 179; olfaction in, 226; Pacific Electric, 78; tapetum of, 303; tectum of, 204, 205, 206
 Receptors, auditory, 255; chemo, 255; gravity, 224; gustatory, 270; irritant, 277; nerve endings as, 262; visual, 255, 286
 Redfish, 112
 Red Sea nurse shark, 129
 Red Tide, 146
 Reef shark, 119; 268; Gray, 40. *See also* Whitetip reef shark
 Remoras, 75, 87, 146, 358

- Repellents, Air Force specifications for, 453-454; ammonium acetate, 456; copper acetate, 278, 356, 373, 456, 457-459, 461, 462, 479, 483, 484, 485, 486-487; copper sulfate, 456, 457, 484; Endrin, 91, 92; extracts, 268, 280; fish, decomposed, 87; fuel oil, 370; gases, 278; ineffective, 75, 378, 383, 455, 456-457, 463, 483, 484, 489; Knofish, 91; light as, 105; maleic acid, 456, 457, 479, 484; OCBM 278-279; odors, 266-268, 280; poisons and irritants, 255, 277-278, 468, 479; and psychological influence, 490; pumping of into hose, 156-157, 480-482; response to, 468, 492, 493; rotenone, 64, 72, 79, 82, 83, 91, 278, 479; shark flesh, 106, 123; shark flesh, decomposing, 87-88, 123, 268, 278, 368, 456, 457, 479, 483, 493; shark flesh, extracts of decomposing, 266, 479, 483, 484; underwater explosions, 370, 384; with value, 483, 493. *See also* Dyes, Shark Chaser, Tests
Requiem sharks, 130-132
Retina, 286, 288, 303, 306, 311-314, 315, 317; lack of cones in, 342; rod-rich, 312, 321
Ridge-back shark, 112
Roach, 183, 203
Rockling, 181
Rogue sharks, 99, 331, 344, 399, 402, 414, 415
Roots, ascending, 174; descending, 174, 175, 177, 181-183, 202; dorsal, 173, 174, 179, 183-184; mesencephalic, 177, 181, 183; ventral, 179, 183, 184. *See also* Fibers
Salmon, 267, 268
Salmon shark, 14
Sandbar shark, 103, 112, 119, 279, 359, 482
Sand devil, 59
Sand dollar, 77
Sand shark, 50, 72, 103, 112, 216, 263, 356, 491
Sand tiger shark, 116, 118, 122, 124, 127-128, 356
Saw-fish, 11
Saw-shark, 11, 330
Scales, 6
Scalloped hammerhead shark, 20
School shark, 27, 329, 335, 337, 338
Sclera, 285, 291, 300, 301
Screaming at sharks, 75, 82, 90. *See also* Shouting
Sea birds, 109
Sea gulls, 80
Sea lion, 80
Sea otter, 68, 69, 466, 467
Sea robins, 174, 175, 183, 195
Sea shark, 337
Sea water, circulating, in cement enclosures, 129; non-circulating, 124; in pond, 156-157; on ship-board, 133; in tank, 131, 132, 152; temperature of, 130, 132; tidal exchange of, 124
Sedentary sharks, 123, 126, 127, 147
Septum, 215, 260, 261, 262; net, 129
Sergeant major, 192
Seven-gilled sharks, 57, 58, 119, 123, 127, 329; Broad-snouted, 58; Sharp-snouted, 58
Sex, 7; 145-146; of bony fishes, 147; differences in feeding, 106, 140, 142, 147
Sexual behavior, of bony fishes, 224; after brain damage, 197, 220-221; in captivity, 145; mating, 103, 106, 112, 146; in open ocean, 357
Shark cage, 80, 81, 84, 90-91
Shark channel, 126, 128, 130
Shark Chaser, 82, 83, 87-88, 90, 92, 93, 373, 463, 479, 491, 494, 502; copper acetate in, 356, 373, 456, 457-459, 461, 462, 479, 483, 484, 485, 486-487; copper salts in, 479; improvement of, 454, 463; ineffectiveness of, 75, 83, 90, 463; method of using, 92-93; nigrosine dye in, 321, 459, 461, 462, 479, 483, 493
Sharksuckers, 70, 71, 75, 112
Sharpnose shark, 458, 461, 486-487
Sharpnosed mackerel shark, 17, 344
Sharp-snouted seven-gilled shark, 58
Sheephead, 79
Shiny objects, 107, 440, 441, 500
Shock, 130, 251, 595-598
Shouting at sharks, 243, 349, 384, 385, 502
Shovelnose guitarfish, 77
Shovelnose shark, 486, 487
Shrimp industry, 102, 110, 466, 467, 469
Sight, sense of, 134, 144, 225; lost, 73; v. sense of smell, 92, 126; of tiger shark, 123, 131. *See also* Vision
Silky shark, 99, 106, 112
Six-gilled shark, 57
Skate, 6, 115, 310, 311, 315, 321
Skeleton, shark, 123
Skin, attacks while water-, 509, 550, 552
Skin tasting, 225
Sleep, 213
Sleeper shark, 59
Small blacktip shark, 38, 352, 354, 355
Small sharks, as bait, 336; bites from, 333, 415; in captivity, 123, 478; visual acuity of, 312
Smell, sense of, 122, 129, 130, 144, 255, 263-265, 266, 270, 279, 320, 457; in dogfish, 263; in elasmobranchs, 255; in hammerhead, 77; importance of, 92; limited sensations of, 225; in relation to taste, 167, 169; in smooth dogfish, 266, 269; in springer's shark, 73. *See also* Odors, and Olfaction
Smithsonian Institution, form, 426-427; files, 425-427, 428-443, 506; tabulation, 430-431
Smooth dogfish, *see* Dogfish, smooth
Smooth hammerhead shark, 20, 22, 23, 77, 111
Smoothhound shark, 49, 68, 73; Gray, 68, 73, 118
Soldier fish, 209, 218
Sole, 183, 185, 225
Sound, 225, 243-253; experiments, 244, 250-252; protection by, 243; reaction to, 82, 90-91, 92, 243, 455
Soupfin shark, 27, 76
Speckled trout, 112
Spinal cord, 167, 168, 171-177, 181, 183, 187; cervical nerves of, 174; in elasmobranchs, 171, 172, 173, 176; fibers, 181, 187; of fishes, 169, 176; intermediate zone of, 169; sensory enlargements of, 175; of smooth dogfish, 172, 277; somatic afferent nerves of, 173, 179; in teleosts, 173-176; tracts to, 174-176, 194
Spinner, 38, 39, 102, 110, 352-353
Spiny dogfish, *see* Dogfish, spiny
Spiracle in selachians, 55, 295
Spotted catshark, 118
Spotted dogfish, 118, 284, 298
Springer's shark, 73, 354-355
Stargazers, 322
Starry jack, 87

- Star-spotted shark, 119
 Sticklebacks, 221
 Sting-ray, 89, 111
 Sturgeon, 214
 Subocular fold, 300
 Suckers, 181
 Sunfish, 221, 239
 Swell shark, 72, 118, 129
- Tactile sense, 279; associations, 199; endings, 248; impressions, 181; impulses, 178, 191, 195; reflex, 273; sensations, 183, 250, 275; stimulation, 240, 273. *See also Touch*
- Tagging, 334-335
- Tails, 5, 6
- Tanks, 116, 120, 124, 126-127, 472; concrete, 132; life in, 132; with running sea water, 131, 477-478, 480, 482; for scientific study, 151, 152, 483; shark research, 153, 155, 455; treated water in, 124, 126, 128, 130, 278; wooden, 131, 133, 478
- Tapetal plates, 303-304; of rays, 304, 310, 312, 317, 321
- Tapetum, 301-303; of elasmobranchs, 302; of rays, 303; of tiger shark, 303
- Target, 134-135, 136, 137-147, 221
- Taste buds, 177, 181, 270-272, 274, 277, 279; fibers from, 225; of spiny dogfish, 271, 272
- Taste organs (terminal buds), 272-274, 280
- Taste, sense of, 255, 275-277, 279; and olfaction, 222; in smooth dogfish, 275; relation of with smell, 167, 169, 222
- Tasting, skin, 225
- Tectum, 173, 176, 178, 186, 191, 194, 197, 199-206, 209; afferent connections of, 201-203, 204; efferent connections of, 203, 204-205; injury to, 206, 207; ipsilateral, 205; layers of, 201; optic, 183, 186, 224, 225, 226, 239
- Teeth, 7, 11, 128, 350
- Tegmentum, 169, 194, 199, 201, 204-205
- Telencephalon, 213-215
- Temperature, changes, 248-250; distribution governed by, 104-105; in enclosures, 122, 126, 128, 130, 132, 477-478; during experiments with repellent, 485, 494; feeding affected by, 123, 140, 142-144; and field studies, 80; and man-eater invasion, 67; migration governed by, 103, 104; in southern Africa, 363, 364, 366, 368; variations, 405; yield governed by, 338; by zones, 403-409, 410-412. *See also Currents*
- Tench, 239
- Tests, fishing, in Biloxi, 457-458; in Ecuador, 456, 457; in Florida, 459-460
- Tests, of repellents, by AIBS Shark Research Panel, 506; in Australia, 490-493; in captivity, 477-483, 490-493; in open sea, 483-488; results of, 489-490, 493-494
- Thalamus, 176, 185; dorsal, 207, 208, 212; ventral, 207, 208
- Thresher shark, 22, 23, 24, 64, 257, 259, 329; bigeye, 105, 290
- Tide, 107
- Tiger shark, 26, 98, 99, 104, 106, 329, 330, 336, 345, 346-347, 350, 351, 364, 395-397, 432, 443; anesthetized, 160, 299; and bubble curtain test, 472-473; in captivity, 115, 116, 119, 122, 123, 131-132; eye of, 290, 298, 299, 300, 303; feeding habits of, 107, 108-109, 122, 124, 458; migration of, 103; olfaction of, 259, 260, 261, 262, 267, 268, 276; reaction of, to light, 105; sight of, 123, 131; tests of repellents on, 278-279, 482, 486, 491, 493
- Tope, 27, 284
- Touch, sense of, in association with terminal buds, 273; in elasmobranchs, 172; in teleosts, 173. *See also Tactile sense*
- Towing, 120
- Toxins, 91
- Tracts, 207, 223; afferent, 211; ascending, 174, 176, 181; bulbo-mesencephalic, 201, 207; bulbo-tectal, 201, 204; to cerebellum, 191, 194; descending, 167, 173, 174, 176, 183; efferent, 201, 208; efferent cerebellar, 191, 194, 197; efferent hypothalamic, 208; fiber, 191, 194, 199-206, 225-226; from forebrain, 208; gustatory, 176, 181, 183; inferior olive, 172, 174, 175, 176, 195; lobo-cerebellar, 194; medial longitudinal, 174; mesencephalo-cerebellar, 191, 194, 204; olfacto-habenular, 216; olfactory, 176, 216, 217, 219, 262, 277, 280; olivo-cerebellar, 191, 194, 195; optic, 167, 203, 207, 209; reticulo-spinal, 174; sensory projection, 172; spino-cerebellar, 172, 174, 191, 194, 195; spino-mesencephalic, 172, 174, 178, 201, 207; spino-olivary, 172; spino-tectal, 174, 201; spino-thalamic, 174; tecto-bulbar, 203; tecto-cerebellar, 194; tecto-spinal, 174, 203; to tectum, 204; thalamo-tectal, 201, 204; vestibulo-spinal, 176
- Traps. *See Catching*
- Trout, brook, 192; speckled, 112
- Tubercle, acoustic, 184, 185, 225; olfactory, 215, 216
- Tubing, glass, 493; Teflon, 480-483, 493; plastic, 264
- Tuna industry, 93, 466
- Turbot, 185
- Turtles, 123, 137; loggerhead, 134; Ridley, 134; sea, 109, 112
- Utriculus, 245
- Valvula, 191-193, 195, 198, 205, 206
- Vision, 321; binocular, 77; brain deprivation interfering with, 240; disturbed, 239-240; normal, 288; obliteration of, 320; poor, 225; role of in locomotion and predation, 316-321; in teleosts, 220; tracts to, 176; under water, 290
- Visual apparatus, 167, 195, 204, 283-323; acuity of, 207, 303, 312; associations, 199, 206, 207, 220; of blacktip shark, 303, 321; centers of, 199, 240; discrimination by, 147; function of, 194; impulses of, 195, 209; response of, 489; stimulation of, 199, 240
- Visual conditioning studies, 155
- Vitamin A, 95-97, 98, 99, 104, 107, 111, 335, 338, 339
- Walking the sharks, 121
- Washtub, 116
- Well, live, 116
- Whale shark, 3, 52, 53, 70, 119, 129, 256; 336, 342
- Whaler shark, 24, 29, 329, 330, 335, 395-397, 491; Northern, 45
- Whales, 129; killer, 403

- Whaling station, 364, 368
 White pointer, 13
 White sea bass, 77
 White shark, 13, 15, 63, 64, 65, 329, 330, 332, 336, 343-344, 350, 397-398, 417, 443; food of, 68, 69, 70; large, 99; populations of, 99, 100; power of, 99. *See also* Great white shark
 Whitetip oceanic shark, 41, 42
 Whitetip reef shark, 43, 44, 75, 80, 85, 355; accompanied by fish, 87; on Clipperton Island expedition, 80, 82-84, 85-86; domination of, 89; feeding behavior of, 88
 Whitetip shark, 50, 264, 269, 355-356, 360, 443; eye of, 303, 304
 Wobbegong, 53, 54, 55, 329, 330, 333
 Wounds, 247; bullet, 80, 89, 378, 416, 468; by shark v. barracuda, 341
 Young, of horn shark, 64; newly hatched, 127, 128, 130
 Zebra shark, 118
 Zones, protective, 485; seasonal, 400-406, 408; tropical, 404, 405, 408

INDEX TO SCIENTIFIC NAMES

- A**bramus, 239
Abudefduf, 192
Acanthias, 263, 305; vulgaris, 284
Acanthurus, 192; hepatus, 193
Acipenser, 214
Aculeola, 12
Aetobatis, 303
Alburnis, 183, 185
Alopias, 8, 22, 24, 295; pelagicus, 22; profundus, 22, 23; superciliatus, 22, 23, 105, 259, 290; vulpinus, 22, 23, 64
Alopidae, 8, 22, 23, 257, 259, 295
Amblystoma, 214
Ameiurus, 186; melas, 273
Amia, 214
Amphioxus, 173
Anguilla, 187
Apionodon, 10, 295; isodon, 9
Apristurus, 295
Atelomycterus marmoratus, 118, 129

Balistes verres, 84
Bothidae, 185
Brachaelurus, 11

Caranax hippos, 108
Caranax stellatus, 75
Carassius, 197, 221, 240
Carcharhinidae, 3, 8, 24, 49, 130, 257, 260, 262, 265, 295
Carcharhinus, 9, 10, 29, 32, 101, 112, 126, 295, 321, 325, 342, 345, 364, 367, 432; acronotus, 33, 313, 355; aethalorus, 38, 456, 484; ahenea, 33, 40; albimarginatus, 34, 42, 43, 44; altimus, 34, 44; amblyrhynchus, 34; amboinensis, 35; azureus, 456, 484; bleekeri, 44; bogimba, 35; brachyrhynchos, 35; brachyurus, 33, 41; budkeri, 41; calamaria, 38; cauta, 36; dorsalis, 34; eblis, 44; falciformis, 34, 44, 45, 48, 119, 131, 355; fitzroyensis, 33; floridanus, 44, 112, 350; galapagensis, 34, 46, 47, 74, 80, 85, 86; gangeticus, 36, 37, 337, 364; glyphis, 36; greyi, 33; greyi mckaili, 35; henlei, 35; improvisus, 33, 364, 365; insularum, 41; iranzae, 34; isobel, 44; johnsoni, 38; lamiella, 33, 46, 47, 73; leucas, 32, 35-37, 100, 103, 119, 131, 223, 251, 351, 352, 482; limbatus, 33, 38, 75, 86, 109, 110, 119, 352, 353; longimanus, 34, 41, 42, 303, 304, 351, 355-356; macrurus, 45, 364; maculipinnis, 33, 38, 39, 110, 352, 353; magnipinnis, 41; malpeloensis, 44; maou, 41; melanopterus, 32, 35, 119, 131, 259, 262, 264, 265, 303, 355; menisorrah, 40, 259, 264, milberti, 34, 44, 103, 119, 131, 355, 359, 482; murrayi, 36; nasuta, 38; natator, 38; nesiotes, 33; nicaraguensis, 30, 35, 100; obscurus, 34, 45, 46, 47, 105, 119, 131, 353-355, 363, 364, 482; oxyrhynchus, 33; phorcys, 38; platyrhynchus, 42, 75, 80; plumbeus, 34; porosus, 355; radamae, 34; remotus, 33, 47, 355; sorrah, 44; spenceri, 35; springeri, 34, 45, 73, 353, 354-355; stevensi, 34, 45; temminck, 33; tephrodes, 33; tuiensis, 33; ultima, 355; vanrooyeni, 35, 37, 364, 365, 367; velox, 33; zambezensis, 31, 35, 37, 364, 365
Carcharias, 10, 50, 126, 196, 295; arenarius, 51, 118, 337, 397; ferox, 51; glaucus, 284, 300, 314; owstoni, 51; platensis, 51; taurus, 51, 72, 103, 112, 118, 127, 350, 356, 364; tricuspidatus, 51
Carchariidae, 50, 127, 257, 295
Carcharodon, 8, 12, 14, 295, 300, 332, 335, 397; albimors, 336; carcharias, 13, 15, 64, 65, 259, 290, 292, 343, 363-364, 366
Carpioidea velifer, 182
Cassus, 276
Centrina salviani, 284, 314
Centrophorus, 12, 300, 306; calceus, 284, 301; granulosus, 301
Centrosyllium, 12, 295
Centroscymnus, 12, 295
Cephaloscyllium umbratile, 118, 129; uter, 72, 118, 129
Cetorhinidae, 7, 18, 257, 259, 295
Cetorhinus, 7, 18, 295, 342; maximus, 16, 18, 68, 70, 259, 284, 300, 301, 304, 314
Chiloscyllium, 11, indicum, 118, 128, 129; plagiostomum, 118, 128
Chimaera, 323; monstrosa, 216
Chamydioselachidae, 295
Chamydioselachoidae, 11

- Chlamydoselachus*, 11, 295
Cirrhigaleus, 12
Cirrhoscyllium, 11
Clupeidae, 184, 185
Conoporoderma pantherinum, 256, 257
Corvina nigra, 192
Coryphaena hippurus, 276
Cyprinus, 323
- Dalatias*, 12, 295
Dalatiidae, 59, 257, 259, 295
Dasyatis, 206
Deania, 12; *calcea*, 284
Diodon hystrix, 299
- Echeneis naucrates*, 71, 112
Echinorhinidae, 295
Echinorhinus, 12, 295
Elagatis bipinnulatus, 75, 82
Enhydra lutris, 68
Esox, 323
Etmopterus, 12, 295, 312; *lucifer*, 119, 133; *saltivani*, 284; *schultzi*, 300; *virens*, 290, 300, 311
Eucrossorhinus, 11, 53, 54; *dasygaster*, 54, 330;
Eulamia, 29
Eupomotis gibbosus, 239
Euprotomicrus, 12, 295
Eusphyra, 19
Euthynnus alletteratus, 108; *yaito*, 276
- Fulgur*, 108
- Gadidae*, 181
Gadus, 195; *callarias*, 213; *morhua*, 189, 212
Galeocerdo, 9, 26, 295; *cuvieri*, 26, 98, 119, 131, 259, 260, 262, 265, 290, 299, 303, 336, 346–347, 364, 396–397, 472–473, 482, 491
- Galeoidea*, 7
Galeolamna, 29, 335; *dorsalis*, 335, 491; *eblii*, 335; *greyi cauta*, 491; *macrurus*, 336, 396–397
Galeorhinus, 8, 9, 27, 306, 335; *australis*, 28; *galeus*, 28, 119, 284; *japonicus*, 8, 9, 24, 28; *rhinophanes*, 335; *zyopterus*, 28, 76
Galeus 196, 295; *canis*, 284, 301, 304, 317
Gasterosteus, 219
Gingymostoma, 11, 53, 55, 295, 300, 301, 311; *brevicaudatum*, 55; *cirratum*, 55, 56, 70, 103, 118, 123, 128, 251, 265, 275, 301, 302, 303, 314, 342–343, 356–359, 482; *ferrugineum*, 55, 256, 258
Gobio, 221
Gobius paganellus, 251
- Halaelurus burgeri*, 118, 129
Haploblepharus edwardsi, 256, 257
Helostoma, 146
Hemigaleops, 9
Hemipristis, 9, 28; *elongatus*, 28
Hemiscyllium, 11; *griseum*, 118, 129
Heptanchus maculatus, 262
Heptanchrias, 11, 58, 295; *perlo*, 58
Heptanchridae, 127
Heterodontidae, 127, 295
Heterodontoidea, 7
Heterodontus, 7, 116, 127, 271, 295; *francisci*, 63, 118, 127; *galeatus*, 118, 127; *japonicus* 118, 127; *portusjacksoni*, 118, 127; *zebra*, 119, 127
- Heteroscyllium*, 11
Heteroscymnoides, 12
Heteroscymnus, 295
Hexanchidae, 57, 295
Hexanchus, 11, 57, 105, 295; *griseus*, 57
Holocentrus, 209, 217, 218, 219
Hopoprion, 10, 119, 132, 295; *signatus*, 105; *signatus Poey*, 359
- Ictalurus*, 197
Isistius, 12, 295
Isogomphodon, 29
Isuridae, 12, 257, 259, 295
Isuropis imako, 337, 397
Isurus, 8, 12, 14, 295, 300, 332, 364; *africanus*, 17, 364; *glaucus*, 16, 17, 344; *guntheri*, 17; *oxyrinchus*, 16, 17, 223, 284, 290, 293, 344, 350, 364; *tigris*, 17, 365
- Katsuwonus pelamis*, 276
Kuhlia, 278
- Lamna*, 8, 12, 14, 196, 295, 312, 314; *cornubica*, 284, 303, 304, 314, 315; *ditropis*, 14, 15; *nasus*, 14, 15, 284, 290, 301, 309, 350; *philippi*, 14; *whiteleyi*, 14
Lebistes reticulatus, 239
Lepomis, 323
Leptocharius, 8
Leuciscus, 203
Limodus, 109
Loligo opalescens, 76
Longmania calamaria, 491
Lophius, 175, 176, 183, 191
Lorenzini, 196
Loxodon, 6, 9, 10, 49
Lutjanus gibbus, 276
- Manta*, 303
Megalopidae, 191
Menidia, 168
Menticirrhus, 192
Mobula, 74
Mormyridae, 191, 195
Mormyrus, 191, 195; *kanume*, 193
Motella, 181
Mugil, 206; *corcula*, 225
Mustelidae, 69
Mustelus, 122, 130, 196, 206, 295, 298, 300, 304, 306, 312, 317, 322, 335, 478; *californicus*, 68, 73, 118, 130, 314; *canis*, 119, 120, 130, 172, 178, 247, 248, 250–252, 261, 263, 268, 284, 290, 296, 303, 304, 314, 316, 317, 342, 455, 477–479, 483; *griseus*, 119, 130; *laevis*, 130, 261, 263, 266, 284, 291, 304, 314, 317, 320; *manazo*, 119, 130; *mastelus*, 302; *schmitti*, 119; *vulgaris*, 284, 314
Myliobatis, 206, 312, 322
- Nebrius*, 11, 53, 55, 57; *concolor*, 57, 118, 129; *doldi*, 57; *macrurus*, 57
Negaprion, 9, 24, 295, 301, 309, 311; *acutidens*, 24; *brevirostris*, 24, 25, 76, 111, 119, 130, 223, 251, 265, 297, 298, 301, 303, 310, 318, 319, 320, 349–351, 482; *fronto*, 24; *madagascariensis*, 24; *odontaspis*, 24; *queensland*, 24
Negogaleus, 9

- Neothunnus macropterus*, 276
Noemacheilus barbatulus, 273
Notidanoidea, 11
Notogaleus, 335
Notorhynchus, 11, 58, 295; *cephedianus*, 58; *maculatum*, 119, 123; *maculatus*, 58, 127
- Orectolobidae*, 10, 49, 52, 53, 55, 128, 258, 265, 275, 295
Orectolobus, 11, 53, 54, 55, 129, 330; *japonicus*, 54, 118; *maculatus*, 54, 55, 119; *ornatus*, 54; *wardi*, 54
Orthagoriscus, 174; *mola*, 210
Ostariophysi, 181
Oxynotus, 12
Oxyrhina glauca, 17; *spallanzani*, 284, 300, 314
- Panulirus*, 109
Paragaleus, 9, 295; *gruveli*, 274
Paralichthys californicus, 68
Parascyllium, 11
Perca fluviatilis, 202
Periophthalmus, 322, 323
Phalacrocorax penicillatus, 66
Phoca vitulina, 68
Phoxinus, 197, 203, 221, 240, 323; *laevis*, 275
Physodon, 9
Pimelometopon pulchrum, 79
Pleuronectes, 195
Pliotrema, 11, 295
Prionace, 10, 28, 295, 309; *glaуca*, 28, 29, 76, 170, 284, 298, 336, 349, 363
Prionotus, 174, 175, 183, 195
Pristiophoridae, 295
Pristiophoroidea, 11
Pristiophorus, 11, 295
Pristiurus, 196
Protopterus, 187
Protozoaena, 9, 10
Pseudotriakidae, *Pseudotriakis*, 8, 295
Pterolamiaops longimanus, 269, 355, 356
- Raja batis*, 317, 320; *clavata*, 244, 246, 315, 317
Rhina squatina, 274
Rhincodon, 10, 52, 295, 342; *typus*, 52, 53, 70, 119
Rhincodontidae, 52, 129, 256, 295
Rhinobatos productus, 77
Rhinotriacis henlei, 130
Rhizoprionodon, 6, 9, 10, 48, 49
Roccus saxatilis, 78
Rutulis, 183
- Salmo*, 203
Salvelinus fontinalis, 192
Sarda sarda, 108
Scapanorhynchidae, 295
Scapanorhynchus, 10, 295
Scoliodon, 6, 9, 10, 295
Scomber japonicus, 66, 68
Scomberomorus regalis, 341
Scorpaenichthys marmoratus, 68
Scyliorhinidae, 10, 49, 129, 257, 295
Scyliorhinus, 116, 168, 176, 215, 291, 295, 298, 300, 303, 306, 311, 321; *boa*, 256, 257; *canicula*, 244, 251, 252, 266, 303, 309; *caniculus*, 118, 123, 129, 248, 284, 309; *stellare*, 266; *stellaris*, 118, 129, 305; *torazame*, 118, 129
Scylium, 168, 306, 311, 312; *canicula*, 284, 298, 317, 320; *stellare*, 215
Scymnodalatias, *Scymnodon*, 12
Sebastodes, 68
Selache maxima, 284
Seriphis politus, 66
Serranidae, 276
Siluridae, 191, 196
Smaris, 240
Solea, 183
Soleidae, 185
Somniosus, 12, 59, 295; *antarcticus*, 59, 60; *microcephalus*, 59, 60, 259, 436; *pacificus*, 59, 60, 436; *rostratus*, 59, 60
Sphaerooides maculatus, 173, 176
Sphyraena barracuda, 108, 223, 340
Sphyraena, 6, 8, 19, 76, 101, 295, 309, 347; *bigelowi* (*see tudes*); *corona corona*, 456, 484; *lewini*, 20, 21, 111, 119, 132, 256, 258, 262, 337, 347–348, 350, 397; *mokarran*, 19, 20, 111, 347–348; *tiburo*, 119, 133, 347; *ties*, 296, 347; *zygaena*, 20, 22, 23, 77, 111, 347–348, 364
Sphyraenidae, 19, 132, 258, 262, 295
Spinax, 190
Spondylus, 276
Squalidae, 133, 257, 259, 263, 271, 272, 295
Squaliolus, 12, 13
Squaloidea, 11
Squalus, 12, 190, 206, 214, 295; *acanthias*, 119, 133, 200, 249, 251, 252, 259, 263, 271, 272, 284, 290, 301, 308, 466; *carcharias*, 12; *cornubicus*, 14; *gunnerianus*, 18; *lebruni*, 180; *maximus*, 18; *nasus*, 14; *suckleyi*, 119, 133; *zygaena*, 19
Squatina, 12, 59, 295, 312, 342; *australis*, 59; *californica*, 77, 119, 133; *dumerili*, 59; *japonica*, 119, 133; *nebulosa*, 119, 133; *squatina*, 59, 119, 133; *tergocellata*, 59
Squatinidae, 58, 133, 256, 295
Squatinoidea, 12
Stegostoma, 11; *tigrinum*, 118, 129
Sutorectus, 11, 54
Synodontis, 185
- Tautogolabrus*, 176
Teredo, 126
Thalassorhinus, 10
Tilapia, 146, 197, 221; *macrocephala*, 206
Tinca, 323
Torpedo, 306, 323; *californica*, 78
Triaenodon, 8, 49, 50; *obesus*, 50, 264, 355, 360
Triakidae, 8, 49, 129, 257, 259, 263, 295
Triakis, 49, 116, 295; *barbouri*, 259; *scyllia*, 118, 130; *semifasciata*, 8, 49, 72, 118, 129
Tridacna, 276
Trigla, 174
Trygon, 206
Xiphophorus, 217, 220, 323; *maculatus*, 218